ADDENDUM TO FACT SHEET
PORT OF SEATTLE
SEA-TAC INTERNATIONAL AIRPORT
Modification of NPDES Permit Number WA-002465-1
in Compliance with Requirements of the
Pollution Control Hearings Board

SUMMARY

The Department of Ecology (Department) issued NPDES Permit No. WA-002465-1 to the Port of Seattle (Port) on September 4, 2003. The permit was appealed and, following a hearing, the Pollution Control Hearings Board (PCHB or Board) issued its Findings of Fact, Conclusions of Law and Order (Order) on October 18, 2004. In the Order, the PCHB remanded the permit and required the Department to address several shortcomings in the permit. This Fact Sheet Addendum contains the basis for the changes proposed to be made in the permit as a result of the PCHB's Order.

REQUIREMENTS SET FORTH BY POLLUTION CONTROL HEARINGS BOARD

The Board required the Department to address the following aspects of the permit on remand:

- **Department must include AKART requirements in permit and incorporate interim limitations on wastewater from Industrial Wastewater System:**
  The PCHB directed the Department to evaluate two alternatives for compliance with the AKART requirement set forth under state law for contaminated wastewater collected in the Port's Industrial Wastewater System (IWS):

  - Discharge of all of deicing contaminated wastewater to King County's Publicly Owned Treatment Works (POTW), and
  - Separation of high strength glycol streams, combined lagoon aeration.

  The PCHB stated that the AKART analysis should also incorporate consideration of whether the permit should contain a limit on total pounds of BOD discharged into Puget Sound. The PCHB's Order requires the Department to require the Port to implement AKART as soon as possible, and to include interim limits for BOD in the permit, as well as any other nonconstruction measures to achieve water quality criteria.

- **Department must impose water quality-based interim effluent limitations (narrative or numeric) on discharges from the Industrial Wastewater Treatment Plant at a minimum** *"Given the Port's failure to come into compliance with water quality standards for IWTP effluent for over ten years, allowing a compliance schedule delaying water quality compliance further is in violation of WAC 173-201A-160(4)(c). The permit provisions relating to IWTP effluent compliance with water quality standards should be*

remanded to Ecology. While it may not be physically possible for the Port to immediately comply fully with water quality standards, Ecology must, at a minimum, impose narrative requirements requiring use of all nonconstruction measures to achieve water quality criteria and impose interim effluent limitations (narrative and/or numeric) - WAC 173-201A-160(4)(b)&(c). Utilization of the expanded lagoon system and the Port's ability to contain much of a high BOD first flush in one of the smaller lagoons for aeration, or any other disposal manner need be explored. Continuing the same practice of discharging highly polluted water into Puget Sound without effective BOD treatment is unacceptable under the governing regulations." Conclusion of Law 28, pages 53-54.

- **Wetland Specialist Review of Lake Reba Required to Determine if it is a Water of the State-Interim Monitoring of Lake Reba Effluent Required:** Depending on outcome of the wetland specialist's review, the Department must require monitoring either into Lake Reba or at the point it discharges to Miller Creek. *"The permit should be remanded to Ecology for further review and appropriate permit modifications based upon professional wetland analysis of the Lake Reba site. In the interim, until a proper determination can be made of the status of Lake Reba, discharge monitoring should be added at the outfall from Lake Reba to Miller Creek. If Lake Reba is not ultimately considered a water of the state, the facility is undeniably discharging into Miller Creek, an undisputed water of the state. Under its existing analysis of Lake Reba, Ecology has no basis for failing to require monitoring of its discharges into Miller Creek and development of appropriate BMPs and/or effluent standards for such discharges."* Conclusion of Law 33, pages 57-58.

- **Compliance Schedule Consistent with WAC Required for Lake Reba Monitoring:** *"To the extent the Port is responsible for discharges to and/or from Lake Reba, the water quality maximum compliance schedule of WAC 173-201A.160(4)(c) is applicable."* Conclusion of Law 30, page 55.

- **BOD and COD Analysis Must be Included in Comprehensive Receiving Water Study:** *"The required study should be modified to be consistent with Ecology's position on BOD and COD at the hearing. Measuring DO is also appropriate. Addition of the BOD, COD and DO parameters should address ACC/CASE's objection that the study does not evaluate the impact of deicing and anti-icing operations."* Conclusion of Law 39, pages 62-63.

- **SDS3 Effluent Must be Included in Comprehensive Receiving Water Study, Department Should Consider Accelerated Deadline for Completion of Study:** Requirements related to SDS3 must be modified and the Department should consider whether study can be completed in less than four years. *"The Comprehensive Receiving Water and Stormwater Study Condition should be clarified to ensure effluent from SDS3 is included in testing, to incorporate one-hour average tests consistent with WAC 173-201A-040, as needed, and to require grab samples during the first thirty minutes of a storm event, as possible, for some or all of the testing events. In revising the Condition S6, Ecology should also evaluate whether the study can be completed in less than four years. Given the long history of unmonitored potentially toxic discharges into*

area waters, all possible speed should be used in developing this information so BMPs can be identified and implemented at the earliest possible time. In addition, Ecology should consider whether discharges from the outfall from the Northwest Ponds to Des Moines Creek should be explicitly included in the study to provide a more comprehensive picture of water quality problems, pollutant sources, and BMP performance." Conclusion of Law 41, page 64.

- **Acute and Chronic Toxicity Testing Requirements Must be Modified to Require Testing of Effluent when Deicing Agents are Present in Effluent:** *"To comply with the requirements of WAC 173-201A-040, the acute toxicity testing portions of the Permit should be remanded to Ecology and the testing program modified to assure a meaningful portion of the testing will occur when deicing agents and their toxic constituents are present."* Conclusion of Law 44, page 66. The Boar

  "The chronic toxicity testing condition in Part I should be remanded to Ecology for revision to incorporate deicing events as a necessary part of the testing plan." Conclusion of Law 45, page 67.

- **Changes Required in Chronic Toxicity Testing Requirements in Part II:** *"Based upon the scientific evidence, the permit provisions for chronic toxicity testing in Part II should be remanded to Ecology for incorporation of clarifications including: (1) in-stream testing locations, (2) more flexibility in the dates for taking samples, (3) identification of the version of the E-test being required, and (4) removing reference to using the results to establish compliance with whole effluent toxicity standards. The Port did not meet the burden of showing the test results should not be used for a possible toxicity identification/reduction evaluation, if it was indicated. WAC 173-205-100. Ecology's position on that issue is upheld and should be clarified in the permit language on remand."* Conclusion of Law 46, page 67.

- **AKART Must Be Implemented before Mixing Zone Can be Applied:** *"This permit allows a mixing zone even though AKART has not been fully implemented. The permit should be clarified to make the mixing zone effective only after AKART for the IWTP has been implemented."* Conclusion of Law 48, page 68.

- **Permit cannot provide for informal modification of its conditions.** *"Permit language enunciating Ecology's reservation of modification authority should be changed to clarify that any permit modifications must be conducted pursuant to the applicable process under state and federal law."* Conclusion of Law 49, page 70. This includes Condition S2B (Ex. 1, p. 15), Condition S.1.F (Ex. 1, p. 41), Condition S.5.A.4. (Ex. 1, p.47) and Condition S.1.C. (Ex. 1, p. 68).

CHANGES TO PERMIT PROVISIONS MADE BY THE DEPARTMENT IN RESPONSE TO RULING OF THE POLLUTION CONTROL HEARINGS BOARD:

DEPARTMENT MUST INCLUDE AKART LIMITATIONS IN PERMIT:

The PCHB's order contained the conclusion that the Department's AKART analysis was based on erroneous information, and therefore the Department must reevaluate AKART in light of new information. Under the existing permit, the Port is required to send contaminated wastewater runoff collected in the Industrial Wastewater System (IWS) to King County's Renton POTW when the BOD_5 concentration exceeds 250 mg/L. The Renton POTW is a wastewater treatment facility that is capable of providing biological secondary treatment to the Port's IWS contaminated runoff. The Renton POTW discharges treated wastewater through a 10,000-foot effluent line to Puget Sound at the depth of 700 feet.

Federal Secondary Treatment Standard Considered to be Consistent with AKART
Secondary wastewater treatment, as employed at the Renton POTW, is a well recognized treatment for BOD, an important constituent in the Port's discharge. The Port's IWS contaminated runoff contains large amounts of waste glycol, an oxygen demanding chemical, which results from deicing activities. According to the King County Industrial Waste Section, the Renton POTW is capable of receiving and treating the *entire* flow of glycol-contaminated runoff from the Port's IWS. The PCHB determined that this fact was not given sufficient weight in the initial AKART evaluation associated with the appealed permit.

The present draft permit is based on the recognition that secondary treatment is consistent with AKART for addressing the Port's discharge from the IWS. The permit contains interim limitations, as well as compliance schedules to allow the Port a realistic time frame to build an adequate system to transport its IWS effluent to the Renton POTW, when the BOD_5 concentrations are expected to result in a monthly average of greater than 30 mg/L. The Department has decided to require this treatment option because biological treatment systems are not only known and available, but economically reasonable as demonstrated by their use at many other major airports in the United States (See Table in Appendix A). **Please see Responsiveness Summary for further information and some changes as a result of comments.**

Final Effluent Limitations

The proposed permit contains provisions for final effluent limitations which authorize discharge of IWS effluent directly to Puget Sound, by means of the Midway Outfall, during those times in which the IWS effluent BOD_5 concentration is expected to result in a monthly average of less than 30 mg/L. **Please see Responsiveness Summary for further information and some changes as a result of comments.**

The proposed final effluent limitations for BOD are based on the federally-determined effluent limits for secondary treatment, which the Department considers to be consistent with state AKART requirements. The proposed final effluent limits for other parameters, mainly metals, are based on water quality criteria set forth in WAC 173-201A with allowance for a mixing zone, after AKART is implemented.

The Port submitted an Economic analysis to support the Engineering Study and Addendum submitted earlier. The report called "Supplemental Information to Support Economic Reasonableness Determination of Industrial Waste System AKART Alternatives" in which an AKART limitation was developed based on cost analysis of unit treatment costs. The Department rejects unit treatment cost analysis presented in the Addendum as a rationale for determining AKART limitations for the airport. A brief review of the contents of the report and the Department's reasons for rejecting arguments set forth in the Addendum are contained in Appendix B.

The Department has determined that the value of the set point is an internal process control variable, and hence, should not be regulated by this permit. It is therefore the Port's responsibility to employ a set point expected to capture enough pollutants to ensure compliance with the effluent limits.

Final Effluent limits for BOD_5, effective on July 2007:

Monthly Average Limits	**30 mg/L**
Daily Maximum Load	**2077 lbs/day**

The daily maximum mass limitation for discharge of BOD_5 to the King County POTW is based on the hydraulic capacity of the IWTP and the monthly average BOD concentration limit. Based on this criterion, the maximum daily load is 2077 lbs/day. **Please see Responsiveness Summary for further information and some changes as a result of comments.**

Interim Effluent Limitations

The interim limits are provided to the Port to provide a reasonable time frame to achieve compliance with final water quality effluent standards. The interim limit calculated for BOD is performance-based, and in other cases, such as those for heavy metals, is obtained directly from the Port's AKART engineering reports.

Based on this analysis, the maximum daily discharge limitations for BOD_5 interim period will be set at:

Interim Effluent limits for BOD_5:

Daily Maximum Limit	**26,000 lbs/day**	**1000 mg/L**
Monthly Average Limit	**9000 lbs/day**	**N/A**

The interim effluent concentration limits were derived from the Port's Annual Industrial Waste Treatment Plant Monitoring Report for 2003-2004. The maximum BOD mass load discharged during 2003 – 2004 was 85,764 pounds per day. The average mass loading was calculated based on the procedure prescribed by USEPA's Technical Support Document. The average mass loading during this period was about 7500 pounds per day.

Prior to the final compliance date, the Port must utilize all available options to ensure that the interim limits are met. Such options may include, but are not limited to: segregation, sweeping, lagoon management, aeration, preventions and source control.

The following were taken from the AKART, 1995 Engineering Report submitted by the Port of Seattle to develop the maximum daily concentration limits:

mg/L	Copper	Lead	Zinc
Mean	0.051375	0.31125	0.1775
Standard Deviation	0.0147812	0.0199375	0.036875
Min	0.025	0.012	0.12
Max	0.082	0.11	0.32

Interim performance-based effluent limits were also developed for other wastewater constituents and will be in effect until AKART is fully and successfully implemented. The maximum daily concentrations for those constituents are:

Parameter	Daily Maximum Limit (µg/L)
Copper	86
Lead	358
Zinc	263
Benzene	19
Toluene	71
Ethyl benzene	11
Total Xylene	221
Naphthalene	167
Total Glycol[a]	2178
[a] Total Glycol is the sum of Ethylene and Propylene Glycol.	

µg/L	Benzene Met. 602	Toluene Met. 602	Ethyl Benzene Met. 602	Total Xylene Met. 602	Naphthalene Met. 625	Ethylene Glycol	Propylene Glycol
Mean	5.175	23.15	3.665	70.6625	37.7062	417.286	158
Standard Deviation	5.86899	20.6362	2.9539	64.4566	55.7091	516.565	172.534
Min	0.5	0.5	0.5	4.65	4.85	36	36
Max	17	58	8.2	170	38,000	1300	280
MDL	0.2	0.2	0.2	0.2	1.6		
Instrument	GC/PID	GC/PID	GC/PID	GC/PID	GC/MC		

Please see Responsiveness Summary for further information and some changes as a result of comments.

DEPARTMENT MUST DESIGNATE STATUS OF LAKE REBA

The Board remanded the permit to the Department for further review and appropriate permit modifications based upon professional wetland analysis of the Lake Reba site. The Board also ordered the Department, in the interim, to add discharge monitoring requirements at the outfall from Lake Reba into Miller Creek until a proper determination can be made of the status of Lake Reba. The Board concluded that while it may be determined that Lake Reba is not a water of the state, the facility still discharges into a water of the state, Miller Creek. As a result, discharges into Miller Creek from Lake Reba must be regulated by the permit.

As a result of the Order, the Department asked its wetland specialist to analyze Lake Reba for designation. Based on this analysis and soil sampling taken by the Department's Wetland Specialist, it was concluded that Lake Reba is clearly a wetland and needs be regulated as a water of the state. Therefore, state water quality criteria must be applied to all outfalls discharging into Lake Reba and any surrounding wetlands discharging into the lake. Part II, Condition S1 of the permit has been modified to incorporate these changes. However, since Part II's compliance schedule to design and install proper BMPs for all outfalls discharging into waters of the state is no later than December 31, 2007, interim measures and monitoring of the Lake Reba outfall is necessary to ensure compliance with state water quality criteria.

CHANGES IN REQUIREMENTS RELATED TO COMPREHENSIVE RECEIVING WATER STUDIES (Special Condition S6., Part II)

The Board ordered the Department to include further requirements for the BOD, COD, and DO in Condition S.6, Part II, in response to the ACC/CASE's objection that the Special Condition S6 did not contain an evaluation of the impact of deicing and anti-icing operations. The Board also required the Department to modify the study to include outfall SDS3 and to complete the study in less than four years, if possible. In addition, the PCHB ordered the Department to require one-hour average sampling consistent with WAC 173-201A-040 as needed, and to require grab sampling during the first thirty (30) minutes of each storm event, if possible, for all of the testing events. The Department was also ordered to consider whether discharges from the outfall from Northwest Ponds to Des Moines Creek should be explicitly included in the study to provide a more comprehensive picture of water quality problems, pollutant sources, and BMP performance.

Condition 6 of Part II has been modified to include outfall SDS3 in the study, and to require the Port to collect grab samples during the first thirty (30) minutes of each storm event for as many storm events as possible. As part of this report, the Port is required to study outfall SDS3 discharges into Northwest Ponds and determine if this discharge has any effect on Des Moines Creek, its ultimate discharge point. The Port is also required to incorporate one-hour average testing protocols consistent with the WAC 173-201A-040, as needed, and if possible.

Please see Responsiveness Summary for further information and some changes as a result of comments.

ACUTE AND CHRONIC TOXICITY TESTING REQUIREMENTS DELAYED UNTIL IMPLEMENTATION OF AKART (Part I of Permit)

The Water Quality Standards for Surface Waters require that the effluent not cause toxic effects in the receiving waters. Many toxic pollutants cannot be detected by commonly available detection methods. However, toxicity can be measured directly by exposing living organisms to the wastewater in laboratory tests and measuring the response of the organisms. Toxicity tests measure the aggregate toxicity of the whole effluent. This approach is called whole effluent toxicity (WET) testing. Some WET tests measure acute toxicity and other WET tests measure chronic toxicity.

In accordance with WAC 173-205-040, the Port's effluent has been determined to have the potential to contain toxic chemicals. The proposed permit would ordinarily contain requirements for whole effluent toxicity testing as authorized by RCW 90.48.520 and 40 CFR 122.44 and in accordance with procedures in Chapter 173-205 WAC. However, the Port is improving pollution control in order to meet other regulatory requirements. The results of an effluent characterization for toxicity would not be accurate until after the improvements have been completed.

Special Conditions S3 and S4, Acute and Chronic Toxicity, were modified to require the Port to continue effluent characterization until an ACEC and CCEC are determined. WAC 173-205-030(4) allows the Department to delay effluent characterization for whole effluent toxicity for existing facilities that are under a compliance schedule in a permit to implement technology-based controls or to achieve compliance with surface water quality-based effluent limits.

CHANGES IN ACUTE AND SUBLETHAL TOXICITY MONITORING PROCEDURES (Part II of Permit)

The Board remanded the permit to the Department to incorporate following clarifications into the permit:

1) In stream testing locations
2) More flexibility in the dates for taking samples
3) Identification of the version of the E-test being required, and
4) Removing references to using the results to establish compliance with whole effluent toxicity standards.

The permit will be modified and the Board requirements incorporated into the permit.

MIXING ZONES BECOME EFFECTIVE AFTER AKART IS IMPLEMENTED

The PCHB ruled that the permit's mixing zones cannot be effective until AKART is completed. As a result, the permit will be issued with performance-based effluent limits for conventional, nonconventional, and toxic pollutants. Mixing zones may be added to the permit, if appropriate, once AKART is fully implemented.

REMOVAL OF CONDITIONS RELATING TO INFORMAL MODIFICATION

The Board ordered the Department to modify the permit language to eliminate authorization of informal permit modifications. According to the Board's Order, permit modifications must be conducted pursuant to the applicable process under state and federal laws. The permit has been modified accordingly with all references to informal permit modification removed from the permit or replaced with language referring to the formal permit modification procedure.

CHANGES TO PERMIT BASED ON SETTLEMENT AGREEMENT BETWEEN DEPARTMENT AND PORT

The Port also appealed the permit, challenging various provisions. Before the close of the hearing before the PCHB, the Department and the Port reached a partial settlement of the Port's appeal. The Settlement Agreement was presented to the Board and it was accepted. The permit has been modified in conformance with the Settlement Agreement. Appendix C contains the full text of the stipulated agreement. Here are some of the changes required.

1. Part I, Condition S4.A – date for submission of effluent characterization report changed from March 1, 2004 to March 1, 2005;

2. Part I, Condition S4.A – deleted last paragraph regarding Pacific oyster and mussel test protocol.

3. Part I, Condition S7.A – revised design criteria for Daily Peak Flow at Maximum Overflow Rate of 4.1 GPM of 7.7 MGD to Daily Peak Flow at Maximum Overflow Rate of 4.1 GPM/SF of Dissolved Air Flotation Surface Area of 7.1 MGD.

4. Part I, Condition S10 – changed milestone for Design Completion from August 13, 2003 to July 1, 2005.

5. Part II, Introduction – revised language regarding collection of samples prior to mixing with any other flow to state "Samples shall be collected immediately after applicable BMP(s)."

6. Part II, Condition S1.A – amend first sentence to make clear that permit authorizes discharges of stormwater associate with industrial activity to waters of the state.

7. Part II, Condition S1.A, Table 1 – modified parameter associated with turbidity monitoring from Turbidity-NTU changed to TSS-mg/L and sampling type from Grab to Flow Weighted Composite.

8. Part II, Condition S1.B – revised first sentence to remove phrase "to the receiving water."

9. Part II, Condition S1.B, Table 2 – modified parameter associated with turbidity monitoring from Turbidity NTU-1 changed to TSS-mg/L and sampling type from Grab to Flow Weighted Composite. Renumbered last footnote as "5" and applied footnote 5 to parameter Ammonia.

Please see Responsiveness Summary for further information and some changes as a result of comments.

OTHER CHANGES AS A RESULT OF THE PERMIT MODIFICATION:

As a result of changes to the permit, i.e., anticipated changes to the Lake Reba status and others, the Port of Seattle requested the Department to include more outfalls to the list of the permitted outfalls under Part III of the permit. These new outfalls will comply with the Section S1 and S2, Part III, of the permit. In addition, the list of outfalls under Part II was also modified. Due to work activities in the vicinity of outfalls SDS5, SDS6, and SDS7, the Port is consolidating these outfalls. The consolidation would result in eventual elimination of SDS7. Under Part I, the Midway Sewer District is relocating and installing a new outfall in the vicinity of the existing outfall. The existing outfall will be abandoned and will not be used for disposal of the treated IWTP wastewater from the Midway Sanitary Sewer. The new outfall is also a shared outfall as the existing ones and is expected to provide improved mixing. The location of the new outfall was also be added to the permit cover page. The new outfalls added under Part III, Special Condition S1.A:

EXISTING OUTFALL LOCATION	RECEIVING WATER	SAMPLING POINT
Latitude: 47˚ 28' 15" N Longitude: 122˚ 19' 00" W	Miller Creek #14-A	At the Point of Discharge
Latitude: 47˚ 28' 00" N Longitude: 122˚ 19' 00" W	Miller Creek #15-A	At the Point of Discharge
Latitude: 47˚ 28' 00" N Longitude: 122˚ 19' 15" W	Miller Creek #16-A	At the Point of Discharge
Latitude: 47˚ 28' 15" N Longitude: 122˚ 18' 45" W	Miller Creek # 28	At the Point of Discharge
Latitude: 47˚ 28' 15" N Longitude: 122˚ 18' 45" W	Miller Creek # 28 -A	At the Point of Discharge
Latitude: 47˚ 28' 15" N Longitude: 122˚ 18' 45" W	Miller Creek # 28 - B	At the Point of Discharge
Latitude: 47˚ 28' 00" N Longitude: 122˚ 18' 45" W	Miller Creek # 29	At the Point of Discharge
Latitude: 47˚ 28' 00" N Longitude: 122˚ 18' 45" W	Miller Creek # 29-A	At the Point of Discharge
Latitude: 47˚ 28' 00" N Longitude: 122˚ 18' 45" W	Miller Creek # 30	At the Point of Discharge
Latitude: 47˚ 28' 00" N Longitude: 122˚ 18' 45" W	Miller Creek # 30-A	At the Point of Discharge
Latitude: 47˚ 28' 00" N Longitude: 122˚ 18' 45" W	Miller Creek # 30-B	At the Point of Discharge
Latitude: 47˚ 28' 15" N Longitude: 122˚ 18' 45" W	Miller Creek # 30-C	At the Point of Discharge

Latitude: 47˚ 28’ 15” N Longitude: 122˚ 18’ 45” W	Miller Creek # 30-D	At the Point of Discharge
Latitude: 47˚ 28’ 15” N Longitude: 122˚ 18’ 45” W	Miller Creek # 30-E	At the Point of Discharge
Latitude: 47˚ 25’ 45” N Longitude: 122˚ 19’ 00” W	Des Moines Creek #4-A	At the Point of Discharge
Latitude: 47˚ 25’ 45” N Longitude: 122˚ 18’ 45” W	Des Moines Creek #5-A	At the Point of Discharge
Latitude: 47˚ 26’ 00” N Longitude: 122˚ 18’ 15” W	Des Moines Creek # 11-A	At the Point of Discharge
Latitude: 47˚ 25’ 45” N Longitude: 122˚ 18’ 15” W	Des Moines Creek #12-A	At the Point of Discharge
Latitude: 47˚ 25’ 45” N Longitude: 122˚ 18’ 15” W	Des Moines Creek #12-B	At the Point of Discharge
Latitude: 47˚ 25’ 30” N Longitude: 122˚ 18’ 15” W	Des Moines Creek #13-A	At the Point of Discharge
Latitude: 47˚ 25’ 30” N Longitude: 122˚ 18’ 15” W	Des Moines Creek #13-B	At the Point of Discharge
Latitude: 47˚ 25’ 15 N Longitude: 122˚ 18’ 15” W	Des Moines Creek #25	At the Point of Discharge
Latitude: 47˚ 27’ 45” N Longitude: 122˚ 17’ 15” W	Gilliam Creek #26	At the Point of Discharge
Latitude: 47˚ 27’ 45” N Longitude: 122˚ 17’ 00” W	Gilliam Creek #27	At the Point of Discharge
Latitude: 47˚ 27’ 30” N Longitude: 122˚ 17’ 00” W	Gilliam Creek #27-A	At the Point of Discharge

APPENDIX A—Airports Employing Secondary Treatment For Removal of BOD From Deicing Wastewater

Airport	Permit Condition for BOD_5	Achieved Level of Control	Treatment Method	Capital Cost	Annual Operating Cost
Chicago O'Hare	Outfall A Monthly Average 10 mg/L Daily Max 20 mg/L Outfall B 20 mg/L Monthly Average 40 mg/L Max Daily		Discharge to POTW	$98 million	$1 million
Kansas City International	30 mg/L Monthly, 45 mg/L Daily		Discharge to POTW	$8.5 million	Not Available
Salt Lake City International	25 and 35 mg/L October-March Monitor Only April-Sept		Glycol recycling recovery system, discharge to POTW	$28 million	$760,000
Buffalo-Niagara International Airport	Daily Max: 30 mg/L		Discharge to POTW	$5.4 million	
San Francisco International	Daily Max: 60 mg/L Weekly Average: 45 mg/L		On site recycling	$28 million	
Metro Nashville Airport Authority	During Winter Streams > 3.0 cfs: Monthly: 65 mg/L Daily: Report Streams 1.0 – 3.0: Monthly: 65 mg/L Daily: 97.5 Streams 0.5 – 1.0 cfs: Monthly: 45 mg/L Daily Max: 68 mg/L Streams < 0.5 cfs: Monthly: 25 mg/L Daily: 38 mg/L		Aerobic biological treatment Discharge to POTW		
Greater Rockford Airport, Rockford, IL (RFD)		3-10 mg/l	Aerobic biological treatment system	$1.8 Million	$176,000
Westchester County Airport		34 mg/L carbonaceous BOD_5	Trucking to an aerobic biological process		
Baltimore/ Washington International			Discharge to POTW	$22 million	

Washington Dulles International			High Strength glycol recycling, discharge to POTW Vacuum trucks in confined area		
Albany International Airport		39-75 mg/L	Anaerobic biological treatment system in two fluidized bed biological reactors Recently installed aerobic polishing filtration units	$30 million	$325,000
London Heathrow		Achieved reductions from 240 mg/L to 40 mg/L	aeration, storage and reed beds		
Portland International			High Strength to POTW Lower Strength to aerated retention pond for biological pretreatment	$31 million	$700,000
Syracuse Hancock International Airport		20 mg/L	Aeration, seeding with nutrients buffer and microorganisms		
Munich Airport			Runway runoff discharged to POTW Taxiway runoff to on-site biodegradation treatment system		
Proposed Sea-Tac	Daily or Monthly 30 mg/L		Discharge to POTW James Sifford of the King County DNR East Division Reclamation Plant at Renton stated in adequate capacity and BOD_5 treatment is available Further the King County conveyance system is fully adequate to handle all of Sea-Tac's industrial waste water	Estimated: $16.5 million	$4.1 million

APPENDIX B—Evaluation of Port of Seattle Economic Reasonableness Analysis

The Port of Seattle submitted an Economic Analysis called "Supplemental Information to Support Economic Reasonableness Determination of Industrial Waste System AKART Alternative" in March 2005 to justify the reasonableness of its chosen AKART alternative. The previous AKART Engineering Report (submitted in 2002) indicated that the Port would install a BOD analyzer to divert the less-concentrated (less than 250 mg/L) pond effluent flows to Puget Sound, and the more highly concentrated flows (greater than 250 mg/L) to the Renton POTW. However, as the economic portion of the AKART analysis was never conducted, and as the set point of 250 mg/L was arbitrarily set, the PCHB ordered the Department to complete the AKART analysis by making the economic determination. The final conclusion of the Port's March 2005 Economic Analysis was to utilize a BOD_5 set point of 175 mg/L. That is, any flow above this set point will be diverted to certain storage areas prior to discharge to the POTW and any flow below this set point will be diverted to dedicated storage prior to discharge to Puget Sound. The analysis was prepared to determine the Best Practicable Technology (BPT) as the first test by using the plot of cost per pound of BOD removed at various set points. The inflection (or "knee") of the curve indicates the region where unit costs of treatment increase steeply. The report contained the recommendation that the BPT effluent limits be set at 175 mg/L. However, there is no basis in federal law, or economic theory, that the inflection point of the curve be a key determining factor in determination of BPT-based effluent limitations. Application of the inflection point for determining BPT-based limitations has been considered by the Fifth Circuit Court of Appeals, and rejected the argument that the Clean Water Act (CWA) required the use of "knee of the curve" cost test in setting BPT effluent limits. The court wrote that:

> "The CWA contains no specific statuary language establishing a BPT 'knee of the curve' test or any other quantitative cost-benefit ratio test for BPT….The courts of appeal have consistently held that Congress intended Section 304(b) to give EPA broad discretion in considering the cost of pollution abatement in relation to its benefits and to preclude the EPA from giving the cost of compliance primary importance." (p.204, Chemical Manufacturers Association vs. USEPA.)

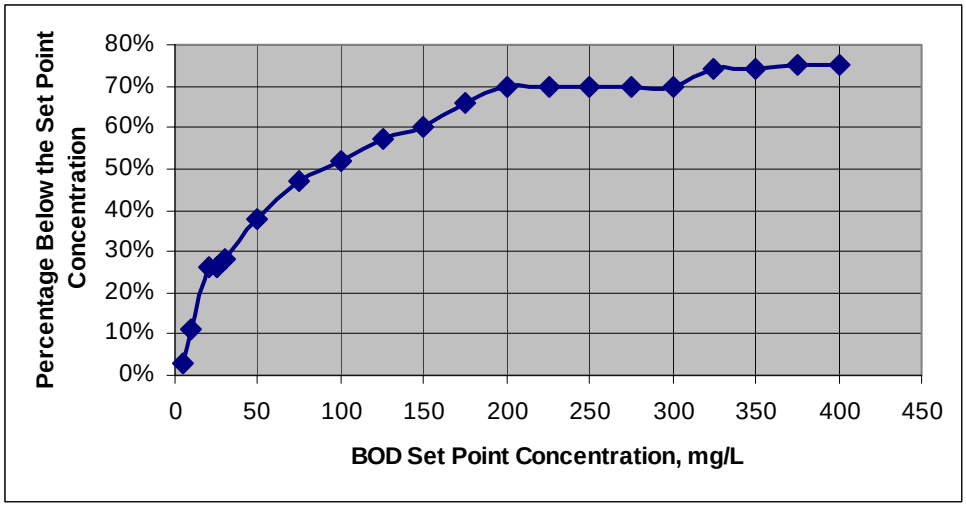
The Department examined the Port's Economic Analysis report and determined that, for conventional pollutants (BOD and TSS), the minimum treatment level to be consistent with BPT and AKART is secondary treatment to achieve a monthly average concentration for BOD_5 and TSS of no greater than 30 mg/L. This conclusion is consistent with the Department's 1991 document entitled "Economic Reasonableness Tests for NPDES and State Wastewater Discharge Permits." Many similar airports in United States are already meeting this limit, or making significant progress toward achieving it (See Table in Appendix A). The Department believes airports in this country have typically chosen to discharge to POTWs is because treatment by POTWs is typically the lowest-cost alternative to meet the secondary treatment requirement. The Port of Seattle's 1988, Addendum to the IWS Engineering Report also reflected a similar opinion. The Addendum contained a proposal for 100% capture and transfer of the Port's IWS effluent to King County's Renton POTW. This Addendum also recommended elimination of the Port's outfall (i.e., the shared portion of the outfall) to Puget Sound.

The AKART Economic Analysis contained recommendations for discharge limitations determined by the concentration below which it would have been uneconomical to discharge the flow to the King County Renton sewage treatment plant. According to the AKART Economic Analysis, the following effluent volumes and BOD_5 loadings could be expected to be discharged to King County at BOD_5 set points of 30 mg/L and 175 mg/L, respectively:

Set Point @	**30 mg/L BOD_5**	**175 mg/L BOD_5**
Percent Volume to King County	**36%**	**13%**
Percent BOD_5 Loading to King County	**99%**	**98%**

Based on data collected during 2003 and 2004 provided as part of the Economic Analysis Report, a set point of 175 mg/L for BOD_5 is likely to result in a long term average of 30 mg/L BOD_5. In addition, raw data for Lagoon 3 from the Annual Industrial Waste Treatment Plant Monitoring Report submitted in September 2004 indicated the following values for pond effluent:

Minimum BOD_5 concentration	4 mg/L
Maximum BOD_5 concentration	5910 mg/L



During the monitoring period, no segregation of concentrated flows was taking place. The average BOD_5 concentration of log-normally distributed data below 175 mg/L is 34 mg/L. The average concentration of log-normally distributed data below 150 mg/L is 29 mg/L. Below 125 mg/L it is 27 mg/L, below 100 mg/L it is 24 mg/L, below 75 mg/L it is 21 mg/L, and below 50 mg/L it is 16 mg/L. Considering the fact that about 66% of the current data were below 175 mg/L, and about 28% of these data were below 30 mg/L, during this period when no flow segregation was taking place, it is unlikely that after flow segregation, the expected concentration of the content of Lagoon 3 would be greater than 30 mg/L. Therefore, if the Port segregates and discharges the concentrated flows to the Renton POTW immediately, without allowing them to be diluted with relatively cleaner subsequent stormwater flows, the content of

Lagoon 3 can be expected to be relatively clean stormwater. Based on this data, it appears that about 42% of the data below 175 are below 30 mg/L, which is an indication that proper segregation would be feasible, and would be expected to result in an effluent value of 30 mg/L. Secondly, the set point must be set at a level to capture and transfer all flows that may result in AKART-limit violations to the Renton POTW during the deicing season. Not diverting all flows to the Renton POTW during the deicing season and allowing it to be mixed (and eventually diluted) with other relatively cleaner stormwater may appear to be intentional dilution of pollution. Deliberately commingling stormwater with process water (in this case, contaminated stormwater) is prohibited. Keeping the relatively cleaner stormwater separated from the highly concentrated and contaminated stormwater to the extent possible is the best management practices that the Port must employ.

Please see Responsiveness Summary for further information and some changes as a result of comments.

APPENDIX C—Stipulation Between Ecology and Port of Seattle for Minor Changes

POLLUTION CONTROL HEARINGS BOARD
FOR THE STATE OF WASHINGTON

THE PORT OF SEATTLE, Appellant, v. STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY, Respondent. AIRPORT COMMUNITIES COALITION, CITIZENS AGAINST SEATAC EXPANSION, and PUGET SOUNDKEEPER ALLIANCE, Appellants, v. STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY, and PORT OF SEATTLE (SEA-TAC INTERNATIONAL AIRPORT) Respondents.	PCHB Nos. 03-140, 03-141, 03-142 **STIPULATION BETWEEN ECOLOGY AND PORT REGARDING ISSUES 1, 5, 11, 13 AND 14**

Appellant Port of Seattle (Port) and Respondent Department of Ecology (Ecology) hereby enter this stipulation regarding the following issues: Issue 1 (Whether the effluent limits for stormwater in the NPDES Permit, including the lack of compliance schedules for meeting the effluent limits, are lawful and appropriate?); Issue 5 (Whether conditions in the

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NPDES Permit relating to nonconstruction stormwater turbidity, including the choice of parameters and the type of sampling required, are lawful and appropriate?); Issue 11 (Whether the interim "milestone" dates for the AKART pipeline in the NPDES Permit are lawful and appropriate?); Issue 13 (Whether the construction design standards specified in the NPDES Permit for the Erosion and Sediment Control Plan for construction stormwater are lawful and appropriate?); and Issue 14 (Whether the NPDES Permit contains minor errors, including typographical mistakes, technical and compliance date inconsistencies that should be corrected?).

1. In Part I, Condition S4.A, change the date in the third paragraph so it reads as follows:

"Effluent characterization report shall be submitted to Department for review and approval on March 1, 2005."

2. In Part I, Condition S4.A, delete the last paragraph regarding the Pacific oyster and mussel test protocols.

3. In Part I, Condition S7.A, the table should be changed to read as follows:

Daily Peak Flow @ Maximum Overflow Rate of 4.1 GPM/SF of Dissolved Air Flotation Surface Area	7.1 MGD
IWTP Hydraulic Capacity	8.3 MGD

4. In Part I, Condition S10, the milestone date for Design Completion should be changed to July 1, 2005.

5. In Part II, Introduction, delete the requirement to collect samples prior to mixing with any other flow, so the fourth sentence of the paragraph reads as follows:

"Samples shall be collected immediately after applicable BMP(s)."

6. In Part II, Condition S1.A, amend the first sentence of the first paragraph so that it reads as follows:

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"Beginning on the effective date of this permit and lasting through the expiration date, the Permittee is authorized to discharge stormwater associated with industrial activity to waters of the state, and shall monitor all discharges at the permitted outfall locations as authorized by this permit."

7. In Part II, Condition S1.A, Table 1, change the Parameter "Turbidity-NTU" to "TSS-mg/L" and the Sampling Type from "Grab" to "Flow Weighted Composite" so the table reads as follows:

CATEGORY	PARAMETERS	DAILY MAXIMUM LIMITS	SAMPLING FREQUENCY[1]	SAMPLING TYPE
Runoff	Flow-MG[2]/Event	Report	Once/Month	Continuous/ Estimate
Runoff	TSS-mg/L	100 mg/L	Once/Month	Flow Weighted Composite[4]
Runoff	pH-S.U.	Between 6.5-8.5 S.U.	Once/Month	Grab
Runoff	Oil and Grease mg/L[3]	15 mg/L-No visible sheen	Once/Month	Grab
Runoff	BOD_5-mg/L	Monitor and Report	Once/Month	Flow Weighted Composite[4]
Runoff	Total Glycol-mg/L[5]	Report-mg/L	Once/Month	Flow Weighted Composite[4]
Runoff[6]	Ammonia-mg/L	19 mg/L	Once/Month	Flow Weighted Composite[4]
Runoff[6]	Nitrate/Nitrite as N-mg/L	0.68 mg/L	Once/Month	Flow Weighted Composite[4]
Runoff	Total Copper-mg/L	63.6 µg/L	Once/Month	Flow Weighted Composite[4]
Runoff	Total Lead-mg/L	81.6 µg/L	Once/Month	Flow Weighted Composite[4]
Runoff	Total Zinc-mg/L	117 µg/L	Once/Month	Flow Weighted Composite[4]
Runoff	Priority Pollutants[7]	Report	2/year	Flow Weighted Composite[4]

[1] The sampling frequency shall continue throughout the term of this permit. If the

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Permittee demonstrates total compliance at the point of discharge with the final effluent limit parameters, as prescribed under Table 1, for one full year, the monitoring frequency for that particular outfall may be reduced to once per quarter upon a written request from the Permittee. The Permittee shall return to original monitoring should an outfall fail to maintain total compliance in two consecutive quarters.
[2] The Permittee shall estimate the flow if continuous flow measurement is not feasible.
[3] Oil & grease shall be measured by Ecology Method NWTPH-DX.
[4] Sampling shall be performed in accordance with the latest approved monitoring plan.
[5] Total Glycol is the sum of Ethylene and Propylene Glycol. Monitoring shall be during deicing and anti-icing months.
[6] Required only if urea is applied. If Urea is not applied, Permittee must certify it.
[7] See Fact Sheet Appendix I for the list of priority pollutant chemicals. Samples shall be taken twice per year, once during wet season and once during dry season in year three (3) and the report shall be submitted to the Department one hundred and eighty (180) days prior to permit expiration in conjunction with permit application.

8. In Part II, Condition S1.B, delete the phrase "to the receiving water" in the first sentence of the first paragraph so it reads as follows:

"Beginning effective date of issuance of this permit and lasting through the expiration date, the Permittee shall conduct regular monitoring of authorized outfalls as described below for discharge of stormwater."

9. In Part II, Condition S1.B, Table 2, change the Parameter "Turbidity-NTU" to "TSS-mg/L" and the Sampling Type from "Grab" to "Flow Weighted Composite," and renumber the last footnote as "5" and apply footnote 5 to the parameter Ammonia, so the table reads as follows:

CATEGORY	PARAMETERS	DAILY MAXIMUM	SAMPLING FREQUENCY[1]	SAMPLING TYPE
Runoff	Flow-MG[2]/Event	Report	Once/Month	Continuous/ Estimate
Runoff	TSS-mg/L	Report	Once/Month	Flow Weighted Composite
Runoff	pH-S.U.	Report	Once/Month	Grab
Runoff	Oil and Grease mg/L	Report	Once/Month	Grab
Runoff	BOD_5-mg/L	Report	Once/Month	Flow Weighted Composite[3]

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Runoff	Total Glycol-mg/L[4]	Report	Once/Month	Flow Weighted Composite[3]
Runoff[5]	Ammonia-mg/L	Report	Once/Month	Flow Weighted Composite[3]
Runoff[5]	Nitrate/Nitrite as N-mg/L	Report	Once/Month	Flow Weighted Composite[3]
Runoff	Total Copper-mg/L	Report	Once/Month	Flow Weighted Composite[3]
Runoff	Total Lead-mg/L	Report	Once/Month	Flow Weighted Composite[3]
Runoff	Total Zinc-mg/L	Report	Once/Month	Flow Weighted Composite[3]
Runoff	Total Hardness-Reported as CaCO3	Report	Once/Month	Flow Weighted Composite[3]

[1] The sampling frequency shall continue throughout the term of this permit. If the Permittee demonstrates total compliance at the point of discharge with the final effluent limit parameters, as prescribed under Table 2, for one full year, the monitoring frequency for that particular outfall may be reduced to once per quarter upon a written request from the Permittee. The Permittee shall return to original monitoring should an outfall fail to maintain total compliance in two consecutive quarters.

[2] The Permittee shall estimate the flow if continuous flow measurement is not feasible.

[3] Sampling shall be performed in accordance with the latest approved monitoring plan.

[4] Total Glycol is the sum of Ethylene and Propylene Glycol. Monitoring shall be during deicing and anti-icing months.

[5] Required only if urea is applied. If Urea is not applied, Permittee must certify it.

10. In Part II, Condition S1, add a new section H to read as follows:

"H. Instream Turbidity Sampling.

The Port shall monitor for turbidity in-stream at points upstream and downstream of each outfall listed in Tables 1 and 2 of this Condition S1. The frequency of turbidity monitoring shall be once/month. The location of each upstream and downstream

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sampling point shall be determined in a sampling and monitoring plan to be developed by the Port and submitted to Ecology for review and approval."

11. Ecology acknowledges that the Port intends to conduct a reasonable potential analysis for the outfalls and parameters listed in Part II, Condition S1, and that the Port intends to submit the results of that analysis and other site-specific information to Ecology for future consideration.

12. If the Port prevails on Issue 12 (Whether it is lawful for the NPDES Permit to apply effluent limits to stormwater that discharges to the Northwest Ponds?), then Ecology and the Port agree that Part II, Condition S1.A, Table 1 should be modified so that numeric effluent limits apply to discharges from Northwest Ponds, rather than discharges to Northwest Ponds. This modification would be made by deleting all outfalls listed in Table 1 that discharge to Northwest Ponds and substituting the following:

OUTFALL #	OUTFALL LOCATIONS	SAMPLING POINT	RECEIVING WATER
NW Pond Outlet	Latitude: 47° 25' 45" N Longitude: 122° 18' 45" W	At the point of discharge	Des Moines Creek (west branch)

13. In Part II, Condition S2.A, change the day of the month on which DMR forms must be received, so the third sentence of the first paragraph reads as follows:

"DMR forms shall be received no later than the 30th day of the month following the completed monitoring period, unless otherwise specified in this permit."

14. In Part II, Condition S5.B(3)(vi), change the condition referenced in the first sentence of the paragraph so the sentence reads as follows: "The SWPPP will include a BMP(s) to identify plant personnel who will inspect designated equipment and plant areas as required in Condition S1.D of Part II of this permit."

15. In Part II, Condition S6, change the amount of rain described in the second sentence of the first paragraph so the sentence reads as follows: "The sampling events must occur during storms with at least 0.1 inches of rain in a 24-hour period."

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16. In Part II, Condition S6, change the sentence immediately before the table on page 54 to read as follows: "Following locations shall be sampled:"

17. In Part II, Condition S8, change the date for collecting samples so the second sentence of the third paragraph reads as follows: "The first sample shall be taken no later than May 1, 2004."

18. In Part III, Condition S1.A.1, correct a typographical error in the paragraph following Table 1 so the second sentence reads as follows: "Walker Creek outfall boundaries extend from wetlands headwaters east of Des Moines Memorial Drive to Des Moines Memorial Drive."

19. In Part III, Condition S1.B, Table 3, delete the requirements in footnote "a" to collect samples within the first hour of discharge, and to collect samples only after 24 hours of no discharge, so the second sentence of the footnote reads as follows: "For nonchemically treated stormwater, the monitoring frequency shall be: a) all samples shall be taken at the sampling point specified in the permit or, in case of in-stream sampling, at the point of complete mix determined by the Permittee; and b) the storm event sampled must be at least 0.5 inches of rain in a 24-hour period; and c) samples must be representative of discharge."

20. In Part III, Condition S1.B, Table 3, change the requirements applicable to sampling frequency for Total Petroleum Hydrocarbons so the fifth column of the table reads as follows: "One/batch for chemical treatment. See footnote[a] for the rest."

21. In Part III, Condition S5.B(1)(b)(iv), change the requirement in the second sentence regarding the existing condition peak runoff rate so the sentence reads as follows: "The peak flow of stormwater runoff shall be controlled as specified by the *Stormwater Management Manual for Western Washington*."

22. The Port agrees to withdraw Issues 1, 5, 11, 13 and 14.

23. This Stipulation sets forth modifications to certain provisions of the Permit that the Port has challenged under Issues 1, 5, 11, 13 and 14. By entering into this Stipulation, the

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Port does not waive its right to challenge these or other provisions of the Permit on the basis of any other Issue listed in the Prehearing Order.

DATED this 16th day of July, 2004.

For PORT OF SEATTLE:

Bob Duffner
Water Resources Manager
Seattle-Tacoma International Airport

For DEPARTMENT OF ECOLOGY:

Kevin Fitzpatrick
Water Quality Section Manager
Northwest Regional Office

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APPENDIX D—Lake Reba Wetland Determination

Department of Ecology
Shorelands & Environmental Assistance Program
Northwest Regional Office
Interoffice Memo

April 11, 2005

TO: Ed Abassi, Stormwater Engineer, Water Quality Program

FM: Erik Stockdale, Senior Wetlands Specialist, SEA Program EMK

RE: Jurisdictional Determination of the Lake Reba Stormwater Facility

On October 18, 2004 the Pollution Control Hearings Board remanded the stormwater permit for SeaTac Airport back to Ecology *"for further review and appropriate permit modifications based upon professional wetland analysis of the Lake Reba site"*, among other issues. This memo documents my evaluation of the regulatory status of the Lake Reba Detention Facility.

In this memo I will refer to the "Lake Reba wetland complex" as the excavated "lake" behind the outlet structure as well as the wetlands up-gradient from the outlet structure.[1]

SUMMARY OF FINDINGS: The evidence in the record is strong and uncontroverted in support of the determination that the Lake Reba wetland complex is "waters of the State" and subject to regulation under RCW 90.48 and Section 401 of the Clean Water Act.

FINDINGS and CONCLUSIONS:

1. "Wetlands" means areas that are inundated or saturated by surface water or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. Wetlands do not include those artificial wetlands intentionally created from nonwetland sites, including, but not limited to, irrigation and drainage ditches, grass-lined swales, canals, detention facilities, wastewater treatment facilities, farm ponds, and landscape amenities, or those wetlands created after July 1, 1990, that were unintentionally created as a result of the construction of a road, street, or highway. Wetlands may include those artificial wetlands intentionally created from nonwetland areas to mitigate the conversion of wetlands. (Waterbodies not included in the definition of wetlands as well as those mentioned in the definition are still waters of the state.). WAC 173-201A-020.

2. "Surface waters of the state" includes lakes, rivers, ponds, streams, inland waters, saltwaters, wetlands and all other surface waters and water courses within the jurisdiction of the state of Washington. WAC 173-201A-020. "Waters of the state" are also defined in RCW 90.48.020.

3. The definition of "waters of the state" in RCW 90.48 and WAC 173.201(A) is broadly construed, and extends to oceans, rivers, creeks, wetlands, ditches, and "anything bigger than a puddle." See Building Indus. Ass'n of Washington v. City of Lacey, Thurston County No. 91-2-02895-5 (1993).

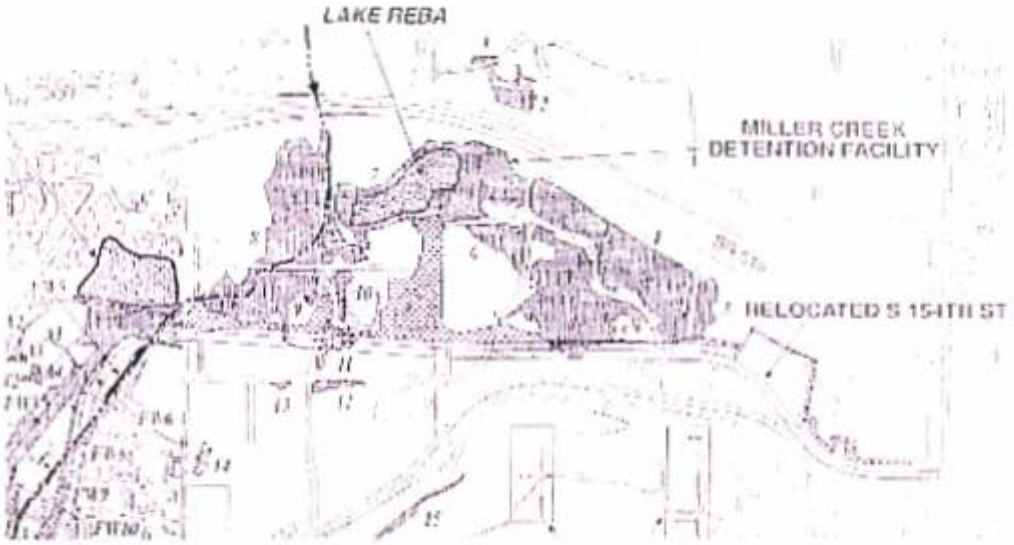

Figure 1: Location of Lake Reba (Source: Natural Resource Mitigation Plan, SeaTac Third Runway)

4. "Treatment wetlands" means those wetlands intentionally constructed on nonwetland sites and managed for the primary purpose of wastewater or stormwater treatment. Treatment wetlands are considered part of a collection and treatment system and generally are not subject to the criteria of this chapter. WAC 173-201A-020.

5. WAC 173-201A-060 General considerations: (10) the primary means for protecting water quality in wetlands is through implementing the antidegradation procedures section (WAC 173-201A-070). (a) In addition to designated uses, wetlands may have existing beneficial uses that are to be protected that include ground water exchange, shoreline stabilization, and storm water attenuation. (b) Water quality in wetlands is maintained and protected by maintaining the hydrologic conditions, hydrophytic vegetation, and substrate characteristics necessary to support existing and designated uses. (c) Wetlands shall be delineated using the Washington State Wetlands Identification and Delineation Manual, in accordance with WAC 173-22-035.

6. My understanding is that the Lake Reba Detention Facility was constructed by the Port of Seattle around 1973. I also understand that it was constructed as part of a legal settlement with neighboring property owners to address flooding impacts. The neighbors were the Kludt's.

7. The "lake" was created by the excavation of hydric soils in a peat wetland. An outlet structure was constructed at the western edge of the lake, and just east of Miller Creek.

8. In her December 30, 1995 declaration in the Third Runway case, Ms. Helen D. Kludt quoted a 1972 letter from Port of Seattle Chief Engineer Verne Lungren regarding the construction of the "North Clear Zone Detention Pond".

   "The Port of Seattle Engineering Department will recommend to the Port Commission that the North Clear Zone Detention Pond be constructed during the summer of 1973. This recommendation will be made as soon as a preliminary cost estimate covering this work is completed. We anticipate that this will be no later than the November 14, 1972 meeting of the Port Commission. This detention pond will have minimum storage capacity of 13.5 acre feet of water (with 1.75 feet of freeboard). This storage capacity will be over and above the normal holding capacity of the pond. The detention pond will have a maximum discharge of 40 cubic feet per second."

9. The detention facility is nestled in a regulated, biological wetland and is subject to regulation by Ecology as "waters of the state". It was not constructed on an upland site, and does not meet the definition of a "treatment wetland" in WAC 173-201A-020.

Photo 1: Lake Reba at outlet structure, March 15, 2005

10. The 2001 Natural Resource Mitigation Plan prepared by Parametrix for the Third Runway project at SeaTac delineated and mapped the Lake Reba wetlands complex as a biological wetland.[2] The wetland complex includes wetlands mapped as number 3, 4, 5, 6, and 7 in figure 1 (above) and figure 2 (below). Wetland 7, including the excavated "lake", is 6.68 acres in size. The wetland complex totals 17.73 acres upgradient of the outlet structure.

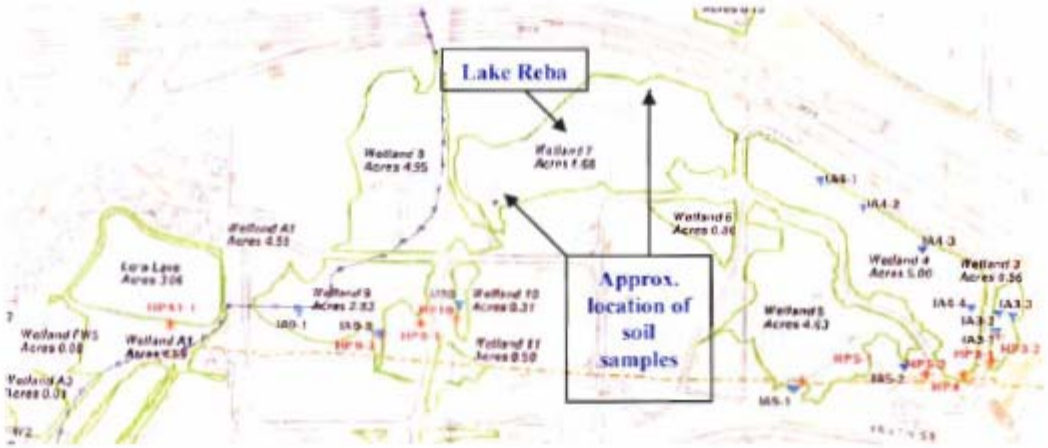

Figure 2: Delineated wetlands, and monitoring sites on north side of Airport, Miller Creek basin. (Source: Port of Seattle).

11. The Lake Reba wetland complex is mapped by National Wetlands Inventory (NWI) as a palustrine open water (POW) and palustrine scrub shrub (PSS) wetland.

12. The King County soil survey mapped the Lake Reba complex as containing rifle peat organic soils.

13. The series of aerial photos in the file (1936, 1946, 1969, and 1974) provide a time snapshot with respect to the progression of land use and land cover changes in and around the wetland complex. The Lake Reba wetland was historically farmed, similar to the Vacca Farm and the Northwest Ponds, largely due to their suitability for agricultural use. Agricultural use of hydric soils is common in western Washington

[2] Shapiro & Associates previously delineated wetlands in the area in 1994-1995. That delineation also showed the Lake Reba wetland complex as a biological and jurisdictional wetland.

due to the high nutrient value of the soils. Agricultural use of peat soils does not result in the conversion of the wetland to uplands due to the difficulty to effectively drain them.

14. The Corps and Ecology concurred with the Port's wetland delineation (conducted by Parametrix Inc.) as part of their deliberation over the Section 401 and 404 permits issued for the Third Runway project.

15. The Corps of Engineers (Corps) continues to regulate Lake Reba as "waters of the U.S." I emailed Ms. Gail Terzi at the Corps on April 7, 2005 and asked the following question: *Does the Army Corps regulated Lake Reba as "waters of the U.S." or is it considered a pollution control treatment facility not subject to Section 404 of the Clean Water Act?*

16. In her April 8, 2005 email response she wrote: ..."yes we do regulate the Lake Reba system as waters of the U.S. ... because it was placed in an historic wetland, any filling would require a permit."

17. I understand that the Port manages the Lake Reba detention facility as a stormwater treatment system. Ecology's water quality program is charged with determining the point of compliance for discharges to the wetland system. This is a separate determination from the jurisdictional determination I was asked to conduct.

18. I understand there may be an operations and maintenance plan for the Lake Reba facility though I have not had the opportunity to see it. I believe Bob Wright is waiting to obtain a copy from the Port.

19. The Lake Reba wetland complex is part of the 56-acre peat wetland mapped as the "Miller Creek peat area" by Dr. George Rigg in his 1958 document titled "Peat Resources of Washington." Lora Lake, Vacca Farm, and the King County Miller Creek regional detention facility are also part of Miller Creek peat area. Rigg cored the peat in three locations along a transect just west of (former) 16th Ave South. He found the peat to occur up to seventeen feet deep, overlaying sand. The peat profile is shown below in figure 3 (below). You will notice the interbedded nature of the various types of organic soil in the profile. You will also note that 16th Avenue South was vacated and removed (presumably) when State Route 518 was constructed. The eastern boundary of Lake Reba straddled the right of way of 16th Avenue South.

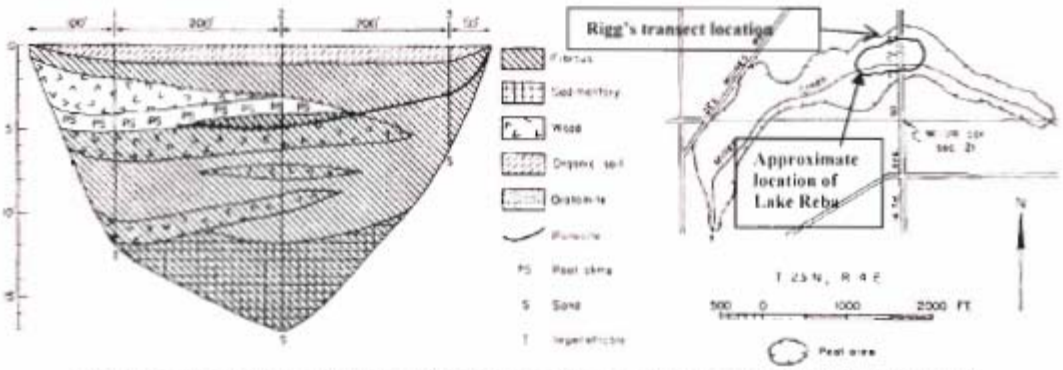

FIGURE 47.—Map and profile of Miller Creek peat area (56 acres). Map adapted from U. S. Department of Agriculture soil map of King County.

Figure 3: Miller Creek peat area (from Rigg 1958, page 78)

20. I took two soil samples on March 15, 2005 on the perimeter of Lake Reba and had them tested for total organic carbon. The samples were sent to Ecology's Manchester Environmental Laboratory for analysis. The two sampling locations are noted in Figure 2.

21. Soils are classified as organic if they have: (a) an organic carbon content percent or more (with 60% or more clay mineral fraction); (b) an organic carbon content of 12 percent or more (with no clay in mineral fraction); or (c) an organic carbon content of 12 percent or more (with less than 60% clay mineral fraction).

22. Sample 00 was taken just south and east of the outlet structure at the edge of the standing water. I collected it using a soil auger, at a depth of approximately 12-14 inches below the ground surface. Sample 00 was measured to have 27.2 percent total organic carbon (TOC).

23. Sample 01 was collected at the (standing culvert) inlet to Lake Reba at the eastern edge of the "lake" (see photo 2). This sample was tested in triplicate by the lab, per EPA testing method requirements (method 90.6). The three samples had 21.2, 24.1 and 27 percent TOC, with an average of 24.1 percent TOC. The variability in TOC is due to the heterogeneity of the sample.

Photo 2: Location of Soil sample #01 at inlet to Lake Reba, March 15, 2005

24. Organic soils in "peatlands" form in areas with poor drainage where precipitation exceeds evapotranspiration (wet temperate climates). They do not form in upland environments. Such soils are essentially the accumulation of poorly decomposed plant material. Stagnant waters inhibit the circulation of gases, such as oxygen, that are vital to decomposing organisms. By volume, peat is typically composed of 84% water, 2% ash or mineral material, 8% organic material, and 6% air. Organic soils are classified by the degree of decomposition of the plant material.

25. Dr. Rigg estimated that peat accumulates at a rate of one inch per 41 years in western Washington. Based on his calculation, it took 8,364 years for that deposit to form. Please recognize that this is a simplistic conclusion, and does not take into account the amount of decomposition of organic matter that likely followed after the peat deposit was cleared and used for agricultural production. The layer of pumicite (volcanic ash) noted in Dr. Rigg's cross section (at approximately five feet in depth) is attributed to the eruption of Glacier Peak about 6,700 years ago.

26. Dr. Rigg's mapping of peat soils at Lake Reba suggest wetland conditions have existed in that location for thousands of years. This makes sense as the area is in a "water receiving" position in the basin. Hydric soils surround the stormwater facility. The vegetation in the area is adapted to wetland conditions. The evidence does not suggest the pond was excavated from an upland area.

27. I did not assess the effect that stormwater discharges have had on the functions of the wetland complex.

28. There are several stormwater outfalls from the north end of the airfield that discharge into the Lake Reba wetland complex. My understanding is that these outfalls discharge directly to the wetland complex with little or no stormwater detention or treatment.

29. I visited the wetland complex on 11-8-04, 2-10-05 and 3-15-05. In general, I noticed adverse effects to the wetlands upgradient from the outlet structure on Lake Reba that have likely resulted from stormwater discharges. The stormwater discharge point into wetland 3 has resulted in downcutting of the channel

relative to the wetland surface. Chronic sedimentation is evident in the wetland downstream from the stormwater discharge points. The matter would require additional investigation for proper characterization.

30. Further investigation into stormwater impacts may be warranted. Sheldon & Associates (1996) conducted sediment quality analyses at Lake Reba and found levels for lead, zinc and copper higher than the lowest effect threshold (LET) per the 1991 freshwater sediment guidelines.

31. Dr. Richard Horner from the University of Washington conducted the sampling for the Sheldon study. Page 44 of the report suggests that … *"the airfield is a smaller source of long-term sediment contamination than other current and, possibly, past sources in the contributing watersheds."*

Table 4 Lake Reba Wetland Sediment Quality (Median Concentrations) [a]

Wetland	TPH	Pb	Zn	Cu	TKN	TP
Lake Reba	1500	117	469	70	6300	660
LETc		31	120	16		
SETc		250	820	110		

[a] All units are mg/kg dry sediment

[b] LET--lowest effect theshold; SET--severe effect threshold from Washington Department of Ecology (1991) freshwater sediment guidelines

Table 1 Lake Reba Wetland Sediment Quality (page 19, Sheldon & Associates 1996)

I trust this memo satisfies the question at hand. Please call me at 425-649-7061 if you have any questions.

cc: John Drabek, Water Quality
Bob Wright, Water Quality
Jeannie Summerhays, SEA Section Supervisor
Joan Marchioro, Attorney General's Office
Katie Walter, Shannon & Wilson
Gail Terzi, US Army Corps of Engineers

Sources Reviewed

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US Fish & Wildlife Service, National Wetlands Inventory, web-based wetland mapper program. Available at http://wetlandsfws.er.usgs.gov/wtlnds/launch.html

APPENDIX E—Responsiveness Summary

Response to Port of Seattle

Economic Reasonableness Determination for BOD in IWS Effluent and other major comments – The Port of Seattle 1998 AKART Engineering Report recommended 100% transfer of flow from IWS to the King County Renton Sewage Treatment Plant. It also recommended elimination of the IWS outfall to Puget Sound (i.e., the shared outfall). It is apparent from the Port's previous reports and submittals that the best solution to the IWS contaminated runoff is to transfer the entire IWS runoff to the King County, Renton Sewage Treatment Plant. This is evident from the previous reports and submittals.

Ecology followed the AKART determination procedure according to the guidelines provided to it. It followed and examined the AKART procedure and used data as presented by the Port. The only difference between Ecology's and the Port's assessment was Ecology stopped the data at set point of 250 mg/L. In addition, Ecology did not see any reason for graphing the data in Log-Transformed manner. The Port did not provide Ecology with any justification for data beyond set point of 250 mg/L despite Ecology's repeated request.

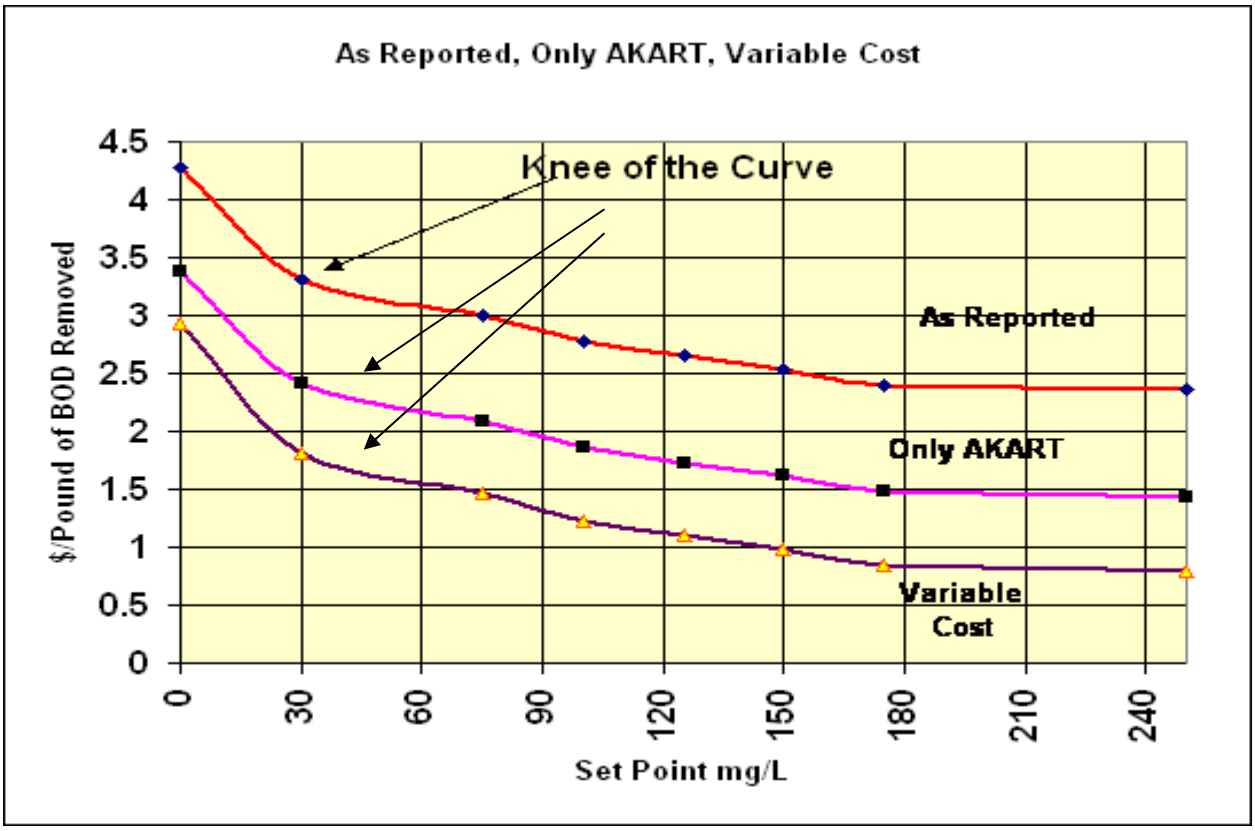
The previous engineering reports submitted by the Port since 1995 had many of the information required by PCHB order on remand. It was evident from the Port's latest supplemental information submitted in 2005, which was based on many economic figures presented earlier in previous reports. The fixed cost information provided in this report was mostly direct transfer from earlier reports. We disagreed with the way the Port had incorporated various unnecessary cost information in their model. For example, the Port did not adjust the pipeline construction fixed cost based on their actual needs, i.e., based on actual flow. That would have made more sense economically. The size of the pipeline should incrementally vary at varying set points. Also, the report appeared to have included many costs that had nothing to do with AKART and their inclusion appeared to have only inflated the cost of pollution removal. Also, the report did not consider the cost per pound of pollution removal based on percent removed. Had the Port designed and evaluated the fixed costs more appropriately and had not included unnecessary costs, and had figured out their cost per pound based on percent removed, the cost of pollution removal at various set points would have been more realistic and would have had a smaller deviation.

We did not disagree with the Port's assertion that cost information must be included in the analysis. However, we disagreed with the Port for inclusion of many fixed costs that had nothing to do with AKART activities—such as improvement to DAF units in early 1990 and potentially enlargement costs of lagoon number 3. We simply eliminated some of these from the table provided by the supplemental report and followed similar procedure and constructed the graph accordingly. We also used similar variable cost information as presented in the supplemental report to calculate cost per pounds of pollution removed. In all cases, at set point of about 30 mg/L, the cost appeared to start rising steeply. The graph below depicts the analysis.

Below is the knee of the curve done in three different manners:

- As data reported by the Port
- After excluding non-AKART data
- Based on variable costs

We have truncated the data after 250 mg/L for the reason explained above. We did not use the Ecology 1991 report as the sole basis for our decision. The graph below depicts clearly the Ecology's basis for the AKART decision.



The figures and numbers we used to arrive at our decision were all from the Port's submittals. We used Table 3 of the supplemental report to find out the long-term average concentration of BOD at various set points, especially at set point of 175 mg/L since the Port was emphasizing on this set point to be best practicable technology (BPT). The table below, derived from the Table 3 of the Port supplemental report, depicts the expected long-term concentration of BOD discharge into Puget Sound at a specific set point. As highlighted, at set point of 175 mg/L, the maximum long-term average concentration of BOD in the Puget Sound outfall is not expected to be above 30 mg/L.

BOD Set Point	Annual Volume to KC at PPM over the Set Point	Annual Volume to PS at PPM over the Set Point	BOD Load to KC $*10^6$	BOD Load to PS $*10^6$	Long-Term Average BOD Concentration To Puget Sound
0	279	0	2.4	0	
30	100	179	2.38	0.02	13
75	62	217	2.37	0.03	17
100	51	228	2.36	0.04	21
125	43	236	2.36	0.04	20
150	39	240	2.35	0.05	25
175	**35**	**244**	**2.34**	**0.06**	**29**
250	30	249	2.34	0.06	29
500	25	254	2.32	0.08	38
1000	16	263	2.27	0.13	59
2000	14	265	2.24	0.16	72
3000	11	268	2.19	0.21	94
4000	9	270	2.13	0.27	120

When Ecology met with the Port prior to submittal of the supplemental report, it neither agreed, nor disagreed, with any particular methodology. We did, however, agree to look into the Port methodology. Ecology always believes the knee of the curve method is one method among many other methods. It should not be considered as the sole economic factor. In this case, Ecology made its decision based on the **knee of the curve**, **study of the trend with other major cities' and airports' practices**, and also **Ecology's previous decisions and policies regarding similar matters.**

As instructed by PCHB order on remand, the purpose of submitting the supplemental information was to assist the Department to finalize its decision. The supplemental report indicated on page 27 that the BPT, based on the proposed knee of the curve, is 175 mg/L. It means that, should the BPT be set at this point, the daily maximum BOD concentration of no single grab sample should exceed 175 mg/L. The report also recommended a monthly average effluent limit of 60 mg/L based on sampling conducted during highest deicing period, i.e., month of January (2003-2004), with a safety factor of 25%. This proposed monthly average effluent limit is based on current limited pollution prevention activities. The Department found no better method of lagoon management, segregation, or on-site treatment. Based on information we have received from the Port, it is possible to achieve a long-term average BOD concentration of about 9 – 30 mg/L for IWS flows discharging to Puget Sound at a set point of 30 to 250 mg/L, respectively. We believe, however, the monthly average permit limit of 30 mg/L seems reasonable and achievable provided the Port utilizes appropriate segregation, lagoon management, and on-site treatment to the maximum extent practicable. This permit does not prescribe any set point. The Port is free to choose an appropriate set point to achieve the permit limits.

The Section 304(b) of the CWA requires the knee of the curve test be used in combination with other tests. We believe the statement used in Appendix B of the fact sheet, in regards to the knee of the curve being not the key determining factor to justify the BPT, is in total agreement with Section 304(b) of the CWA. Again, Ecology did not reject the Port's analysis based on a single factor. We disagreed with the way the Port had included unrelated and unjustified cost figures and other data into its analysis. We, in fact, used similar methodology as the Port to arrive at a different conclusion.

The basis for Ecology's decision was based on many factors. First, we did look at the trend around the country similarly as the Port did in 1988. As reported by the Port's 1998 AKART engineering report, it was clear that many similar large cities are using their local sewage treatment plants as the recipients of their industrial wastes and contaminated runoffs. It was obvious that the Port also noticed the trend, as the 1998 report clearly and undoubtedly indicated that entire IWS flows should be transported to King County – so confidently that it even suggested elimination of the Port outfall to Puget Sound. The second basis for Ecology's decision was the Ecology's 1991 document that clearly describes the Ecology's policy as it is applied to conventional pollutants. It described that for conventional pollutants, the minimum treatment level for BPT is indeed secondary treatment and therefore, secondary treatment is required regardless of economic factors. However, we did not stop at this point. We continued reviewing the supplemental report until we arrived at our final decision that the knee of the curve is indeed about 30 mg/L. We concluded that it is appropriate to insert a monthly average permit limit equivalent to the secondary effluent limit.

We do not disagree with your comments on importance of climatic condition. This factor should be considered in the selection of an appropriate treatment system, as well as selection of appropriate deicing technologies. As for the AKART report of 1998, it appears that the Port did consider the climatic condition of the northwest. We believe it was because of this consideration that the Port decided to build a pipeline large enough to handle the climatic condition of the northwest, large enough with potential to eliminate its outfall to the Puget Sound. We believe the climatic condition must be utilized in choosing best methodology in handling the contaminated runoffs in light of minimizing and eventually eliminating flow of toxic pollutants to the Puget Sound, methodology such as combination of efficient waste segregation and on-site treatment. Needless to say, in the future, appropriately selecting more modern and less chemical dependent and invasive deicing and anti-icing technologies and procedures must also be investigated and possibly employed.

In conclusion, to arrive at our decision, we did not exclude any data except data for set point of above 250 mg/L. We used exact numbers as reported by the Port in the report. In doing so, we did consider the King County capacity charge and other factors. We also understand the importance of pollution prevention and flow segregation to be perhaps potentially the best technical and economical options that need to be further investigated by the Port to minimize and eventually eliminate entrance of unnecessary toxic chemicals into the environment.

To provide the Port with operational flexibility and in consideration of climatic condition, we decided to seasonalize the AKART effluent limits. That is, to have slightly less restrictive limits during winter season and slightly more restrictive limits during summer. These seasonal effluent limits are unlikely to cause any considerable increase in annual pollution load to the Puget Sound.

We modified the permit Table 1-A, Final Effluent Limit for **BOD_5** as follows:

	November through March (5 Months)		**April through October (7 Months)**	
	Monthly Average	**Daily Maximum**	**Monthly Average**	**Daily Maximum**
BOD_5	45 mg/L 500 lbs/day	Report, mg/L 3115 lbs/day	25 mg/L 130 lbs/day	Report, mg/L 1340 lbs/day

Wetland Delineation for Lake Reba:

This determination was made by the Ecology's own wetland specialist. It concluded that the entire "Lake Reba wetland complex" is indeed wetland, hence waters of the state, and it deserves protection as any other waters of the state. We do not believe natural wetland should be used for treatment of man-made pollutions. The treatment capability of a natural wetland must be left to the nature.

Refer to Appendix D for the Ecology's wetland specialist determination.

We agree with your assertion that Ecology has allowed natural wetland to be used as sewage treatment or as industrial treatment lagoons. There may be other facilities and private businesses and potential municipalities that may have stormwater ponds that were built on historic wetland sites. Please note that those cases are slightly different and should not be mixed with this case. Those facilities are limited to flow of certain **quality and quantity from a known source**, as opposed to the Lake Reba wetland complex system. This wetland system is being used by the Port, WSDOT, and the City of Sea-Tac haphazardly. However, this is Ecology's policy to use individual permits when opportunity arises to address these issues.

In regard to the draft WAC 173-201A(3)(f) issued in 2003, it does seem to be more accommodating, but this chapter is not final yet and such decisions have to be reverted to the existing rules and regulations available.

Lake Reba was included to the list of the receiving water on the permit cover page.

Summary of Permit Submittals – The permit, Summary of Submittal for Part II, will be modified to incorporate changes.

S6.	Comprehensive Receiving Water & Stormwater Runoff Study, Sampling and Quality Assurance Plan	1/Permit Cycle	July 1, 2005
S6.	Comprehensive Receiving Water and Stormwater Runoff Study – Final Report	1/Permit Cycle	January 31, 2008
S8.C	Sublethal Toxicity Testing Final Report	1/Permit Cycle	June 30, 2006
S9.A	AKART Analysis Engineering Report	1/Permit Cycle	January 31, 2005
S9.B	Final Engineering Report	1/Permit Cycle	January 31, 2006

S1.A, Table 1-A: Interim Effluent Limitations for BOD_5 – The **"N/A"** was mistakenly included in the list. It should have been **"Report mg/L."** The table was corrected to reflect the changes.

Interim Effluent Limitation – For total glycol, since the BOD is mostly a direct result of wasted glycol and the permit has already contained interim maximum effluent limit for BOD, inclusion of interim effluent limit for total glycol seems unnecessary. However, this permit requires the Permittee to continue monitoring for total glycol. For other parameters, we modified the permit and replaced the toxic parameters interim effluent limits with the new limits calculated based on updated information you provided.

µg/L	Benzene	Toluene	Ethyl Benzene	Total Xylene	Naphthalene
	Met. 602	Met. 602	Met. 602	Met. 602	Met. 625
Count	61	61	61	57	10
Mean	2.1	54.4	7.1	30.1	14.3
Stdev	4.3	7.1	26.7	35	17.1
Var					
Min	0.26	0.26	0.26	0.5	1.72
Max	25	2,600	210	142	52
MDL	0.2	0.2	0.2	0.2	1.6
	GC/PID	GC/PID	GC/PID	GC/PID	GC/MC
Daily Max. Limit - µg/L	12	71	69	112	54

Parameter	**Daily Maximum Limit**
Copper	83 µg/L
Lead	167 µg/L
Zinc	164 µg/L
Benzene	12 µg/L
Toluene	71 µg/L
Ethyl Benzene	69 µg/L
Total Xylene	112 µg/L
Naphthalene	54 µg/L

S1.A, Table 1-A, Interim and Final Effluent Limits - The table was modified to include S3 and S4.

S1.B, Table 1-B A – The table was modified to require COD Benchmark Maximum Monthly Average Concentration instead of maximum concentration.

S1.D, Mixing Zone – The language on page 15, S1 D., **Mixing Zone,** will be modified to read as:

> "The mixing zone in Section S1.D **may be** granted effective January 1, 2007, **only** after successful implementation of AKART."

S2.A – Glycol and COD Monitoring – The daily frequency for glycol and COD were adjusted to one per week. The COD was also reinserted into monitoring requirements.

S3.A – Acute Effluent Toxicity Characterization Schedule – The second sentence of this section of the permit language will be changed to read as follows:

> "The two acute toxicity tests listed below shall be conducted on each sample taken for effluent characterization <u>which shall occur after AKART implementation.</u>"

S4.A – Chronic Effluent Toxicity Characterization Schedule – The second sentence of this section permit language will be changed to read as follows:

> "The two chronic toxicity tests listed below shall be conducted on each sample taken for effluent characterization <u>which shall occur after AKART implementation.</u>"

S7.A – Design Criteria Table – The design criteria was changed to 7.1 MGD.

S10, Part I, Compliance Schedule for IWS – The language was changed to eliminate any references to 250 mg/L.

Part II – Elimination of Permitted Outfalls – Elimination of an outfall in most cases is not considered significant change to the permit. Permittee should simply inform the Department in writing. In most cases, public notice may not be even necessary, too, since citizens appreciate fewer outfalls **–** Fewer outfalls could potentially result in lesser pollution. In some cases, however, outfall closure may mean combining one or two or more outfalls and the newly combined outfalls may increase amount of pollution load to a stream. Such proposals, although seem advantageous, must be studied carefully to ensure that such actions will not compromise the receiving water quality criteria. Therefore, granting a general and blank statement in the permit to eliminate outfalls without careful consideration may not be appropriate and in the public interest. Below is an excerpt from Code of Federal Registration that discusses minor modification of the permit.

§ 122.63 Minor modifications of permits.

Upon the consent of the permittee, the Director may modify a permit to make the corrections or allowances for changes in the permitted activity listed in this section, without following the procedures of part 124. Any permit modification not processed as a minor modification under this section must be made for cause and with part 124 draft permit and public notice as required in §122.62. Minor modifications may only:

(a) Correct typographical errors;

(b) Require more frequent monitoring or reporting by the permittee;

(c) Change an interim compliance date in a schedule of compliance, provided the new date is not more than 120 days after the date specified in the existing permit and does not interfere with attainment of the final compliance date requirement; or

(d) Allow for a change in ownership or operational control of a facility where the Director determines that no other change in the permit is necessary, provided that a written agreement containing a specific date for transfer of permit responsibility, coverage, and liability between the current and new permittees has been submitted to the Director.

(e)(1) Change the construction schedule for a discharger which is a new source. No such change shall affect a discharger's obligation to have all pollution control equipment installed and in operation prior to discharge under §122.29.

(2) Delete a point source outfall when the discharge from that outfall is terminated and does not result in discharge of pollutants from other outfalls except in accordance with permit limits.

(f) [Reserved]

(g) Incorporate conditions of a POTW pretreatment program that has been approved in accordance with the procedures in 40 CFR 403.11 (or a modification thereto that has been approved in accordance with the procedures in 40 CFR 403.18) as enforceable conditions of the POTW's permits.

[48 FR 14153, Apr. 1, 1983, as amended at 49 FR 38051, Sept. 26, 1984; 51 FR 20431, June 4, 1986; 53 FR 40616, Oct. 17, 1988; 60 FR 33931, June 29, 1995]

Part II, S1.A. Footnote 7 for Ammonia – Ammonia was added to the footnote 7.

Part II, S1.B and S1.C, References to Table (2) – References to Table (2) were deleted.

Part II, S1.B – References to Qualifying Storm – The permit language will be changed to incorporate the comment. It will be read as:

> "If there are no qualifying storms per Section S1.B3 and B4 (below) during the reporting period ……."

Part II, S2A – DMR Submittal – The DMR submittal due date was changed to the 28th day.

Part II, Section S6 – The Northwest Pond and Lake Reba were added to the list of receiving water in the first paragraph.

Part II, S8, Sublethal Toxicity Sampling and Monitoring Plan – This section of the permit was modified to exclude any references to Section S6.

Part II, S8, Sublethal Toxicity Effect Level, Repeat Sampling Provisions, and Sampling Protocols – The language that was presented in the draft modified permit, as well as the effect level and the sampling protocols, was approved by Ecology water quality program toxicologist, Randal Marshall, and was also agreed by the Port to be reasonable language. This language should have been included in the original permit. The PCHB ordered Ecology to replace the language in the original permit with this agreed-upon language.

Part II- S9.C – **Final Engineering Report** – Condition **S9.C** was deleted.

Fact Sheet Addendum – **Comprehensive Receiving Water Study** – Reference to SDS7 was changed to SDS3.

Fact Sheet Addendum – Stipulation Agreement – The modified permit will be carefully reviewed to ensure all provisions of the stipulated agreement are properly and accurately incorporated into the permit.

Fact Sheet, Sublethal Testing – The fact sheet addendum will have an explanation of rational on sublethal toxicity.

Response to Ms. Arlene Brown:

Comments on Responsiveness Summary Regarding Arlene Brown's Comments:

As we responded to you last time, this matter does not seem to be within the scope of this permit. This permit has a term of no more than five (5) years, and its sole purpose is to protect water quality. I can only add to my previous comment by saying that the soils transported to this site must pass rigorous clean soil criteria established by the Department. This permit does not regulate the soil quality. I recommend you contact Ms. Alice Kelly, Regional Environmental Planner, to receive response to your specific questions about quality of soil being transported to this site and any other questions that you may have on other issues. She can be reached at the following address:

WA State Department of Ecology
Northwest Regional Office
3190 - 160th Avenue SE
Bellevue, WA 98008-5452

About your comment on occurrence of brain cancer among citizens living in localities around the airport, I recommend this matter be persuaded via Washington State Department of Health (WSDOH). This matter is clearly outside the scope of this permit and any further discussion will also be unrelated to water quality protection.

Any Changes and Delays in Approved Compliance Schedule is Unacceptable:

The Department concurs with you. Having a deicing pad appears to be a reasonable and logical solution. However, the Port decided to do it differently. The permit modification has not caused any delays and changes to the final compliance schedule. The only change it has caused was to expedite the project completion date. The completion date was set to be January 2007, about seven months ahead of the previous July 2007 schedule.

Test and Report Schedules Need To Be Adjusted:

We have required more frequent monitoring where it is necessary to ensure compliance. In certain cases we have asked the Port to conduct certain studies. These studies are usually time consuming and are over a long period of time. For cases with long-term monitoring, such as what you pointed out, reporting of once-per-permit cycle is reasonable and appropriate. In setting monitoring frequency, we consider variability of the data to decide monitoring frequency and always the higher the variability, the higher the monitoring frequency.

In the case of the Acute Toxicity Test Characterization Summary Report, the IWS effluent is to be tested regularly but the final characterization report shall be submitted after AKART completion. This way we can compare the effect of AKART and the extent that it has reduced or eliminated toxicity. We will include Acute Toxicity Characterization Data and Chronic Toxicity Characterization Data to the summary of submittal to be submitted four (4) times/year and sixty (60) days after each sampling event.

Port Application March 4th Date Too Late for September 2008:

It is the federal law that requires the NPDES permit holders to resubmit their application at least one hundred eighty (180) days prior to their permit expiration. It is unlikely that the Department is able to issue the new permit immediately after the existing permit expiration date. In such cases, the existing permit and all its provisions will be extended, and it will be in effect until the new permit is issued. This permit extension is acceptable and valid for five (5) years, and it can be executed by a letter from Ecology.

Record Retention Needs To Be Lengthened:

The three-year retention time is very typical and applied uniformly throughout. Extending it any further may not serve any purpose. However, in certain cases, the Department may extend the retention time during the course of unresolved litigation for discharge of pollutants by Permittee. In this case, we increase record retention to seven years. This increase in length of record retention is not due to any unresolved mitigation.

Recording of Results – Add Calibration Expiration:

I believe the permit language is quite protective against failures such as calibration. Any noncompliance as a result of calibration failures may be considered for enforcement action. If it can be shown that noncompliance is the result of failure of the Permittee to provide adequate calibration to sampling equipments, whether due to Permittee's negligence, or willful action, enforcement actions will be initiated against Permittee.

Does This Permit Provide Adequate Protection From Dioxins and Chrome?

The Department has seen no evidences of dioxin generated from deicing practices or from rubber burning during landing. The Department has reviewed and concurred with the test being conducted by the Port for contaminated soil. Please also refer to my earlier response on contaminated soil.

Response to Mr. David Athearn:

Thank you for your comments. This permit is written to ensure long-term water quality compliance. As you might have noticed, this NPDES permit is much more extensive, and it contains many more restrictive and enforceable requirements that typically a similar but smaller facility NPDES permit may not contain. This permit is more restrictive and is more protective of the water quality for the same reason you discussed accurately in your comment letter.

Response to Greg Wingard:

Response to Comment on Proposed Effluent Limit for BOD:

The proposed maximum and monthly average effluent for **BOD** was set at 26,000 lbs/day and 9000 lbs/day, respectively. At the maximum hydraulic capacity of 8.3 MGD, maximum effluent concentration of the effluent will not exceed 376 mg/L. At monthly average limit of 9000 lbs/day, and assuming that the Port would maximize its outfall use, the maximum expected effluent concentration should not exceed 130 mg/L. At any rate, it must never exceed 1000 mg/L since the maximum effluent concentration is set at 1000 mg/L, which is the likely concentration above-which toxicity may occur. At this loading rate and concentration, an occurrence of toxicity is unlikely.

About **dilution**, the Department concurs. According to the PCHB, the dilution must not be considered when setting up AKART limits, and the Permittee must use whatever tools are available to minimize its potential to discharge in toxic amount.

This permit indirectly requires the Permittee to reduce its discharge load to a great extent. Although the permit is not prescriptive, it is implied that the Permittee must use all tools available to meet the reduced interim limits and to minimize its discharge load.

We modified the permit Table 1-A, Final Effluent Limit for **BOD_5**, as shown below. These limits were adjusted to account for winter and summer climatic conditions. The section was also adjusted to require compliance with final effluent limits by January 1, 2007.

	November through March (5 Months)		**April through October (7 Months)**	
	Monthly Average	**Daily Maximum**	**Monthly Average**	**Daily Maximum**
BOD_5	45 mg/L 500 lbs/day	Report, mg/L 3115 lbs/day	25 mg/L 130 lbs/day	Report, mg/L 1340 lbs/day

In addition, in response to your comment on Compliance Schedule, Condition S10, the Part I compliance schedule was amended to read as:

Construction Complete: **January 30, 2006**
Startup Testing: **July 1, 2006, to December 31, 2006**
Compliance Deadline: **January 1, 2007**

And Part II, Summary of Submittals, CRWES Sampling and QAP date of July 1, 2004, was changed to July 1, 2005.

NPDES Permit Part I:

Footnote b, Table 1-A – The language in proposed modified permit was changed to read as follows:

> "The maximum daily effluent limitation is defined as the highest allowable daily discharge. The daily discharge means the discharge of a pollutant measured during a calendar day. For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day."

The language on page 15, S1 D., **Mixing Zone,** was modified to read as:

> "The mixing zone in Section S1.D **may be** granted effective January 1, 2007, **only** after successful implementation of AKART."

The COD monitoring was inadvertently removed from the list of parameters. It is added back on the list.

Annual Stormwater Monitoring Summary Report – The final decision on whether Sea-Tac is complying with the water quality standards will be made by the Department based on the report submitted by the Port. This monitoring report was added to the list of required submittals.

Annual Sanitary Sewer Discharge – The language was corrected and it will be read as:

> "On or before January 15th of each year, the Permittee shall submit a report to the Department summarizing all data collected pursuant to Condition S2.A2."

Acute Toxicity for Outfall 001 – The **Topsmelt or Mysid shrimp** language in the permit is identical language we have used to all other marine dischargers in this state.

Record Retention – What we have discussed in the permit is standard operating procedure. However, in this case we understand your comment and agree to change the records retention time to 7 years. Please review my response to similar comments earlier.

Additional Monitoring S5 D. – This section of the permit will be modified to include the following language:

> "…of the data submitted in the Permittee's DMR and the annual stormwater monitoring report."

Operation and Maintenance S6 – The permit requires the Port to keep on its site an approved operation and maintenance (O&M) manual. In addition, the permit requires the Port to seek the Department's review and approval for any modification to the manual. It is the Permittee's responsibility to ensure all operators are fully familiar with the contents of the manual, and it is also their responsibility to confirm this with the Department annually in writing. Inappropriate O&M may result in noncompliances and any permit noncompliance, as a result of lack of proper O&M, could be considered willful and negligence. The Department agrees with you about occasional O&M problems, but I cannot say with certainty if any have resulted in permit noncompliances. In the case of Lake Reba's operation and maintenance manual, I have not reviewed any such document.

Effluent Mixing Study S11 – The mixing study conducted by the Port in mid-90 is applicable as long as the Port has not increased the applicable flow, or it has not changed the very nature of outfall diffusers that can affect the pattern of mixing. The protocol requires the Permittees to conduct this study under critical conditions. The outfall configuration and nature of the flow does not seem to have been changed to require a new outfall mixing zone study. However, we believe the Port must resubmit a new mixing study report immediately after installation of the new outfall in a new location and different diffuser configuration.

Effluent Mixing Study S11.B – This section was modified and the last sentence of Section S11.B that would grant option to the Port to elect to cease direct discharges to the Puget Sound was deleted.

Sediment Monitoring S12 – The Port once fulfilled its obligation and submitted its required report, but the report was never finalized by the Department. For the new outfall that is being installed by the Midway Sewer District, the Port must update its Sediment Monitoring Plan and their Mixing Study Report as described above.

NPDES Permit Part II

Part II. Non-Construction Stormwater – We do believe the permit's, Part II, toxicity requirements are adequate to identify presence of toxicity. Allowing some operational flexibility is unlikely to jeopardize water quality. However, we do not disagree with your assertion in principal and therefore, we modified the permit to say:

> "Samples shall be collected immediately after applicable BMPs but prior to mixing with any other flow."

S1A. Turbidity and TSS – The comment is noted. Consistent with a stipulation between the Port and Ecology entered into during the appeal, the permit contains a provision requiring instream turbidity sampling (Part II, Condition S.1.G.) and under Part II, Condition S.1., Table 1, the Port is required to report the results of its turbidity sampling. As it is required in all permits, Part II, Condition S.3 requires that the Port comply with water quality standards. Therefore, the results of the Port's sampling will be used to determine if it is in compliance with the water quality standards' turbidity criteria. In addition, in order to determine the relationship between TSS and turbidity, Part II, Condition S.1.G will be modified to require the Port to develop a study plan analyzing those parameters. The study plan shall be provided to Ecology for its review and approval within sixty (60) days of the issuance of the modified permit.

Lake Reba – According to the Ecology's wetland specialist, Lake Reba is waters of the state**.** Therefore, requiring submittal of an operation and maintenance manual seems contrary to our determination. Requiring an O&M plan from a treatment wetland is reasonable but in case of natural wetlands, it seems unnecessary. Influent to the Lake Reba wetland complex system appear to be mostly through various incised channels that are unlikely to have ability to provide any treatment to the discharged flows. Therefore, compliance monitoring of such discharges that are reaching Lake Reba through these channels at a point downstream of these channels is adequately protective and no other monitoring upstream is necessary.

S1.B. References to Table 2 were deleted in both cases.

Comprehensive Receiving Water and Stormwater Runoff Study – We will modify the first paragraph to include Lake Reba to the list of receiving waters. This report requires the Port to study the Lake Reba as receiving water. The sampling locations table in this section of the permit calls for all upstream and downstream outfalls that are discharging into Lake Reba.

As for the sampling location table, the intent is to either sample upstream and downstream of each outfall, or all outfalls as the permit has given such choice to the Permittee. However, the intent of this section is to assess the impact of Port activities on the receiving water. In case of Lake Reba wetland complex system, however, due to lack of upstream sampling point, we have identified upstream of the Lake Reba outfall to Miller Creek to be the most appropriate upstream point to be compared with downstream sampling point that the Port shall identify, which will be the point of complete mix for each outfall.

S9.C - Compliance Schedule – The permit was modified and Subsection S9.C was deleted.

NPDES Permit Part III

S1A.2, footnote "b" and "f" – The in-stream sampling requires the Port to take samples at the point of complete mix. Determination of the point of complete mix depends on velocity of the flow, gradient, depth, and width of the receiving water, and location and vicinity of the outfall to the creek bank. We agree with your assertion in principal. However, due to unsteady nature of the receiving water and the discharge, we believe establishing a permanent sampling location may not be appropriate; therefore, we asked the Port to ensure an appropriate sampling location. Sampling locations as determined by the Port need to be regularly inspected and verified by the Ecology's on-site water quality inspector to prevent excessive dilution.

S1A.2 – The references made to Oil & Grease shall be changed to Ecology Method NWTPH-DX, and the sampling frequency will be modified to require that sample collection to be when a visible sheen is observed.

Response to Smith & Lowney, P.L.L.C., Richard A. Poulin:

Permit Part I – Industrial Wastewater Provisions:

New Outfall Location – Information on new outfall locations will be incorporated into the permit.

Permit Cover Page – The permit will be modified to identify the discharges to Puget Sound as **contaminated stormwater** and to include Lake Reba to the list of the receiving water.

Annual Stormwater Monitoring Report – The permit summary of submittal will be modified to include this report.

Maximum Daily Flow Limit – I agree with you. It is important to have flow limit in the permit. However, as it is indicated in the current permit, the actual maximum flow is based on an agreement between the Port and the owner of the outfall, i.e., the Midway Sewer District, which is based on available hydraulic capacity.

Your point on using dilution to achieve compliance is well taken. Dilution can bring about compliance with the concentration limit without changing the applicable load. However, such activities are prohibited, as explained in the fact sheet addendum – dilution is not solution to pollution – and any attempt to use clean water to dilute the wastewater to achieve compliance is certainly against the very essence of the Clean Water Act that is pollution prevention and elimination. The DAF unit can provide treatment for TSS and oil and grease. It is incapable of providing treatment for BOD. Therefore, flow specified in the permit is what is used to calculate BOD load and it is based on reported hydraulic capacity of the industrial wastewater treatment plant (IWTP).

Proposed Interim Effluent Limit – The date was changed to December 2006. We are in general agreement with your comment, but we cannot agree with your interpretations of the order. To clarify, I am rephrasing and using excerpts from the responses Port of Seattle made to Mr. Poulin in March 2005 concerning similar comments and questions. The letter states:

> The heart of the problem is the gap between what the law says must occur immediately, and what is physically possible to achieve. The Board determined that the ten-year compliance schedule for compliance with water quality standards has expired, and that no further compliance schedule extensions were possible. Nevertheless, the Board also affirmed the legality of the compliance schedule for construction of the AKART pipeline. **The Board also recognized the fact that until the pipeline is completed, the Port is faced with physical obstacles to assure compliance with the water quality standards.** The Board provided two-part solution to this conundrum by requiring Ecology to impose narrative requirement for use of all non-construction measures to achieve water quality criteria, and to "impose interim effluent limits (narrative and/or numeric)."

Regarding the "non-construction measures," the Port has taken action to develop and implement a non-construction management system. By the middle of December 2004, the Port had performed the following actions:

- Changed configuration of lagoons so that all influent goes first to Lagoon 3. This allowed waste to be held for long periods of time in Lagoon 3 before being pumped to Lagoons 1 and 2 prior to processing at the IWTP.
- Purchased and installed two TOC (Total Organic Carbon) meters to measure BOD. One TOC meter has been used for manual batch testing for grab samples taken from Lagoon 3. The other TOC meter has been used for monitoring IWTP effluent after processing and prior to discharge to the Midway outfall.
- Implemented a testing program for Lagoons 1, 2 and 3; the most important element of this is daily BOD sampling at three locations within Lagoon 3.
- Managed the lagoons so that there was no discharge from the IWTP to the Midway outfall until the average of the three Lagoon 3 samples was less than 1,000 mg/L. This was assured through the use of the TOC meter prior to discharge to the Midway outfall.

During 2003-2004, the maximum discharge of BOD was about 5000 mg/L, with the highest monthly average and daily maximum load of about 37,000 and about 85,000 pounds per day, respectively. The maximum discharge concentration authorized by the modified permit during the interim period is no more than 1000 mg/L, with monthly average and daily maximum load of no more than 9000 and 26,000 pounds per day. This is a tremendous reduction in concentration and load to the Puget Sound with respect with what was reported during 2003-2004. Considering the extreme difficulties that the Port is facing in trying to ensure compliance with the standards prior to completion of the AKART, i.e., the difficulties that the PCHB already recognized in its ruling – we have chosen to require the Port to continue with non-construction preventive measures to reduce the BOD impact to Puget Sound as described above. The preventive measures will also reduce total loads from heavy metals and other pollutants associated with deicing operation.

About the performance effluent limit for parameters, such as copper, lead, and zinc and others: These limits are statistically-based limits and are quite possible to be many times greater than the specified mean. The higher the variance of these limits, the greater the difference would be. Nevertheless, this permit requires the Port to comply with water quality criteria as well. This is in addition to the performance-based effluent limits.

The limit for TSS and Oil and Grease is adequate and need not be changed. There is no specified water quality-based effluent limits for TSS and oil and grease.

As said above, the Port is facing great difficulty in meeting numerical water quality-based effluent limits for those few parameters you mentioned in your comment prior to meeting AKART. Nevertheless, during the interim period, the Port must continue to utilize all means to reduce the total loads of pollutants to the Sound to the maximum extent possible and must comply with the narrative language of the water quality standards.

The permit contains narrative requirements as required by the Board. The permit Part I, Section S1.A will contain the following language:

> "Prior to the final compliance date (i.e., January 1, 2007), the Port shall utilize all available options such as but not limited to waste stream segregation, glycol sweeping, lagoon management, aeration, prevention, source control, and other alternative disposal."

Part I, S1-B, footnote "a" and "b" – The language will be modified accordingly. The footnote "a" will be modified to contain the following language:

> "The average monthly effluent limitations are based on the arithmetic mean of the samples taken during the calendar month."

BOD_5 Maximum Daily Effluent Limit – We modify the permit Table 1-A, Final Effluent Limit for **BOD_5** as follows:

	November through March (5 Months)		**April through October (7 Months)**	
	Monthly Average	**Daily| Maximum**	**Monthly Average**	**Daily Maximum**
BOD_5	45 mg/L 500 lbs/day	Report, mg/L 3115 lbs/day	25 mg/L 130 lbs/day	Report, mg/L 1340 lbs/day

The **weekly effluent limit** is only appropriate in the case of sewage treatment plant biological treatment system. In case of industrial discharges, daily maximum and monthly average limits are most appropriate. The secondary effluent limits to be applied in case of industries should be based on the required minimum removal efficiency and monthly average limits, and of course, an appropriate daily maximum limit. The economic evaluation conducted by Ecology successfully defended the secondary effluent limits to be applicable in this case. However, considering the need for more operational flexibility and to ensure compliance, these limits were carefully adjusted for dry and wet seasons as shown above.

The AKART pipeline under construction will help remove greater than 98% of the pollutants that is being discharged to the Sound on a daily basis. The minimum efficiency expected of a secondary biological treatment plant for conventional pollutants is 85%. Expecting the Port to accommodate for 100% transfer to the King County seems unreasonably excessive, and it could potentially be detrimental to efficient operation of the King County Renton Sewage Treatment Plant.

Monitoring BOD in lbs/day – The Port will have to calculate the BOD load and input it into its DMR. There is no need to make any changes in S2.A, Monitoring Requirements.

Mixing Zone – The language in the permit will be modified to read as, "The mixing zone in Section S1.D **may be** granted effective January 1, 2007, only after successful implementation of AKART."

Heavy Metal and COD Monitoring – The COD was inadvertently deleted in proposed draft modified permit. We have included it into Section S2A. In case of frequency of monitoring, the language in the permit was modified to increase the heavy metals monitoring frequency to once per month. Also, the footnote "e" from Table S2.A was removed to initiate heavy metal sampling immediately after issuance of the permit to ensure compliance with heavy metal interim narrative effluent limits. The frequency of monitoring for COD, too, was also changed to daily to correspond with BOD to ensure more meaningful sampling and monitoring. The new frequency will also help answer the question of long-term BOD/COD relationship.

Informal Modification Part I, S.2.B; Part II, S.1.E and S.5.A.4; and Part III, S.1.C. – The language in theses sections will be modified to read as:

> "Unless otherwise specified in this permit."

Acute and Chronic Toxicity Testing –The effluent characterization sampling shall be conducted four times per year for one year during deicing season. It will consist of minimum dilution of five concentrations and a control that will be used to determine the concentration lethal to 50% of the organisms. The permit as written clearly requires the Port to continue effluent characterization for acute and chronic toxicity until the time ACEC and CCEC are known. According to the permit, if the Permittee has toxicity effluent limit and the ACEC, or CCEC are not known, the effluent characterization will have to go past one year with the same frequency (i.e., four per year in this case) until ACEC and CCEC are known.

Compliance Schedule and Reference to 250 mg/L – This is obviously a mistake and will be corrected. The language will be modified to say:

> "The Permittee shall build the associated infrastructure to transport treated contaminated stormwater from industrial activities that contains BOD concentrations above permit effluent limitations…"

The AKART compliance schedule will be modified to read as:

> Condition S10, Part I, compliance schedule was amended to read as:
>
> | | |
> |---|---|
> | Construction Complete: | **January 30, 2006** |
> | Startup Testing: | **July 1, 2006, to December 31, 2006** |
> | Compliance Deadline: | **January 1, 2007** |

Effluent Mixing Study – The permit language will be modified to remove references to the permit Part I, Condition S1.C. The language in this part is written to require the Port to submit a plan of study to the Department thirty (30) days prior to initiation of effluent mixing studies, i.e., basically for the new outfall. Since the status of the Midway outfall is not known and no known timetable is fixed yet, setting any specific timetable may not be practical. We have, however, asked the Port to submit their effluent mixing study for the new outfall 180 days prior to permit expiration in conjunction with the permit application.

Part II – Non-construction Stormwater Runoff

Turbidity and TSS Relationship – Please see my response to Mr. Greg Wingard about this matter.

Part II, S1.G, Deadlines for sampling monitoring plan – This section will be modified to include the recommended language as follows:

> "….submitted to Ecology for review and approval, no later than 60 days after permit modification date."

Note to Table 1, Part II – The "**Note**" was inadvertently deleted from Part II, Table 1. It will be included into Table 1.

References to "Tables 1 and 2" in subparagraph B1 and paragraph C – References to Table 2 will be deleted in both places.

Comprehensive Receiving Water and Stormwater Runoff Study – Lake Reba and Northwest Ponds were both intended to be included in the study but were inadvertently dropped. They are included in the list.

The permit will be modified to require the Port to study compliance status of discharges from SDS3 with respect to the acute water quality criteria for heavy metals as needed. In addition, any references made to Lake Reba as "stormwater facility" is also deleted.

In case of **whether there is any correlation between COD and BOD**, the language seems appropriately written to require the Port to, prior to establishing the correlation, investigate this matter first and do so if preliminary investigation reveals that such correlation exists. However, the language will be simplified per your recommendation to read as:

> "The report must study the ―relationship between the BOD and COD content…"

Concerning the Miller Creek; in WRIA 9 and its inclusion under 3039(d) listing: There are about 151 impaired waters, out of which 74 are due to fecal coliform. Unfortunately, this is the case with many of the urban streams and Miller Creek is not an exemption. Whether this impairment can be attributed to the Port of Seattle and whether there are enough evidences to prove such allegation, it is debatable. The Port has helped remove many sources of fecal coliform within the Sea-Tac boundary – many sources, such as old and failing septic systems and so on. The Miller Creek may need a water quality clean up plan (TMDL), like many similar urban streams.

As for the sampling location table for S6, Part II: The intent is to either sample upstream and downstream of each outfall, or all outfalls as the permit has given such choice to the Permittee. However, the intent of this section is to assess the impact of Port activities on the receiving water.

S9.C. – References to the old Table (2) were deleted in the modified permit.

Part III – Construction Stormwater Discharge

Part III, Condition S1.B, Table 3 – The samples from construction sites must be collected when there is discharge as a result of a qualifying storm. That is when the storm event intensity is at least 0.5 inches of rain in a 24-hour period. Although we do not disagree with your assertion on using a grab sample during the first hour of discharge, this sampling scheme does not seem appropriate for construction sites. Considering the enormity of this site and the number of possible samples that may have to be taken for a specific qualifying storm event, it is not intuitive to Permittee to recognize a storm event as a qualifying storm during the first hour of discharge. Therefore, requiring sampling during the first hour of discharge, the Port would have to sample every storm during first hour and not knowing which storm is a qualifying one, the majority of samples may have to be discarded because so few rainfall events may meet the criteria for a qualifying storm. Secondly, the majority of the Port's construction runoff is collected at various ponds to receive excellent chemical treatment prior to discharge. However, your comment concerning changing the "discharge period" to "day" was incorporated into the permit.

About TPH sampling and testing method: The sample shall be collected at the end of the pipe. The end of the pipe sampling was mistakenly replaced with in-stream sampling. The table will be modified to ensure that the TPH samples are collected at the end of the pipe and prior to discharge.